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CLINICAL
EXPERIMENTS,
HISTORIES,
AND
DISSECTIONS.

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TO THE
MANAGERS
OF THE
ROYAL INFIRMARY
OF EDINBURGH,

The following sheets are dedicated,

By their most obedient,

Humble Servant,

FRANCIS HOME.

NOTHING, at present, distinguishes civilized from barbarous nations more than the institution of hospitals for the relief of the sick. They keep proportion with, and are the most certain tests of polished and humane manners. Besides the pleasure which arises in a benevolent mind from the contemplation of the relief which hospitals afford, these charitable institutions amply repay the expence which the public bestows on them, by promoting the study and practice of medicine. Under one roof are collected a great variety of morbid cases, to which students have an easy access, and where a wide field is opened to physicians for the improvement of the science.

The student has there an opportunity of seeing a variety of diseases, without much loss of time; and becomes a skilful practitioner, before he claims, as a physician, the confidence of his fellow-citizens.

citizens. He is there taught to avoid many dangerous mistakes, into which one who begins the practice of medicine, without this assistance, is apt to fall.

The physician finds many advantages there for the improvement of his art. The patients, with whom he meets, have seldom contributed to debilitate their constitutions; their complaints originate from the body, and but rarely from the mind; their theories and caprices are not so troublesome to him as those of people in higher life; they have seldom undergone a long course of medicine; and their diet is under absolute controul. On these and other accounts, their diseases have a greater chance of appearing in a simple and natural state.

Nothing hinders the physician from following his own reason and experience in the cure, and he is responsible to his own conscience alone. He can try different and new methods of cure, provided he has a probability of success, and proceeds with proper caution.

caution. Not the least advantage, which arises from hospital practice, is the simplicity with which remedies are prescribed, as to number and preparation, by which they do not disturb the operations and effects of each other ; and their natural and genuine properties are discovered and ascertained, from which medicine receives much improvement.

These advantages belong still, in a higher degree, to the clinical ward of the Royal Infirmary of Edinburgh ; as the best marked diseases, the most singular in their nature, and the greatest variety of acute, as well as of chronic, are chosen for it. Regular and circumstantial reports of every symptom belonging to the disease, and of every effect produced by the remedies exhibited, are taken constantly once, and in acute and urgent cases, generally twice every day, in presence of the students. These reports are all reviewed, when the case becomes the subject of a clinical lecture. There cannot, therefore, be a more useful

useful addition to a medical college, nor a more favourable institution for the improvement of the student, of the physician, or of medicine itself. In that point of light I have always considered the clinical ward ; and, therefore, think myself accountable to the public for the use which I have made of such advantages. That opinion produced the following publication.

As there are many obstacles to the improvement of medicine, so there are several aids, which, if carefully attended to, will give it a great degree of certainty. One of these, is a description of all the circumstances preceding, attending, and following the administration of different remedies, in morbid cases. Remedies exhibited in such diseased states of the body, and the effects resulting from their operation, when accurately and faithfully described, are real experiments in this branch of natural knowledge, and tend to make medicine as certain as most other sciences.

With

With this view, during my attendance on the clinical ward for two summers, and a part of six winters, the following experiments were made, to ascertain the effects and value of several remedies in general use, and to discover new relations in others. To give these experiments the utmost degree of certainty, the day of the month, and the year in which the patients were received, are constantly marked ; so that any person may consult the cases in the clinical report-books, kept in the Infirmary, where he will find them at full length, as they have here been much shortened.

Another principal foundation of medicine, is an accurate history of diseases. An account, therefore, is given of such as seemed most uncommon, or whose nature has not yet been well ascertained ; and we have, in them, been as attentive to the symptoms and progress of the disease, as in the others to the exhibition of the remedies.

Medicine owes much assistance to the inspection of morbid bodies by the moderns. That information is likewise subjoined when the issue was fatal, and when that inspection was allowed.

To some, a minute recital of facts may appear tedious. But then they ought to consider, that this was the first, and is still the most certain method of improving medicine; and that many of the conclusions are new, and contrary to the common opinions; on which account they ought not to be received on my word alone, but be subjected to the judgment of every person. The pleasure arising from truth and conviction must, at least, attend them.

By the following experiments, the effects of remedies have rather been retrenched than extended, and the powers of many, in high repute, are rendered somewhat doubtful. To compensate that loss, we have endeavoured to establish, in others, some new properties, which we hope future trials will confirm. Conclusions

sions from experiments made in the clinical ward, must meet with more credit than those derived from private practice; as they are performed before so many spectators; as they are reviewed in the clinical lectures; and as they are preserved in the private reports-books of each gentleman present, and in those kept in the Royal Infirmary.

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CLINICAL

CLINICAL EXPERIMENTS AND HISTORIES.

S E C T. I.

*Experiments with regard to the most proper
time of giving the Bark.*

WE trust, now, the cure of the ague
to the bark alone. We should,
therefore, be certainly acquainted with the
best time for giving it ; that is to say, the
time in which it exerts, most powerfully,
and most safely, its effects. A disease, so
very apt to recur, demands its utmost powers.
It is often necessary to save the bark, as
much as possible, in the army and navy.
It may become scarce during war, or fail
us from other accidents. Less will do,
A when

when given in the proper time ; more will be required in a less proper time.

It has been given at three different periods, just before the fit, just after the fit, and from the end of one fit to the beginning of the succeeding, at proper intervals ; for it has never been prescribed, so far as I know, during the paroxysm. When it was first introduced, drach. ii. were given, two hours before the fit ; and, as it was the practice, it must, then, have often succeeded. Some, especially those who think that it acts directly on the nerves of the stomach, still prefer this method ; others, again, are of opinion, that it is most powerful after the fit. Amongst the latter is Sydenham, who says, in his epistle to Dr Brady, “ that bark given before the fit, has not so good an effect as after it ; and that it, often, destroyed the patient, by throwing him into a continued fever.” Torti and Cleghorn join this side. Practitioners have, most commonly, given it in the third method, as including both the first and second. But, so far as they knew, the cure may depend on the first or last doses ; and the others may be at least useless, and are
always

always disagreeable and burdensome to the stomach. Our inquiry must be, therefore, whether the first or second method is the better; and it can be determined by experiment alone.

EXPER. I. May 3. 1769. Katharine Frazer, aged 23, had a double tertian for a month. For some days the fit came regularly at 3 A. M. She got a vomit and dose of infus. amar. 6th, She took P. Cort. Peruv. drach. i. at 12 at night, and the same dose at 1 in the morning. But the fit attacked her a quarter before 2 A. M. 7th, This night she took three doses just before the fit. She had a fit at the usual hour, but slighter. 8th, This night the same number of doses were repeated. But a severe fit followed. As she had a pain in her side, the bark was given up.

EXPER. II. May 17. Peter Taylor, 21, has had a double tertian for three weeks. Had been once bled, and got two vomits. Got a dose of tinct. rh. amar. 20th, As the fit was expected at 3 P. M. he began with p. cort. drach. i. at 9 A. M. which was repeated every hour. As he threw up the three
first

4 CLINICAL EXPER.

first doses, the quantity was diminished to drach. fs. every hour, which produced no vomiting. Had a gentle fit.

EXPER. III. May 18. Katharine Bremner, 20, had a tertian for three weeks. She got a vomit and inf. amar. 31st, Her fit, which, as to time, was variable, being expected at 9 A. M. she began at 6 A. M. to take bark, drach. i. every hour; and took four doses. The fit came on at 2 P. M. June 2d, Began at 5 A. M. and took six similar doses. But the fit came on at 1 P. M. She had a fit on the 4th.

EXPER. IV. May 11. 1770. James Thomson, 25, has had an intermittent, sometimes tertian, sometimes quotidian, for five weeks. 19th, As he expected his fit at 4 P. M. got drach. ii. of bark at 2, and another similar dose at 3 P. M. Some minutes after, the fit came on; but was slighter. On the 21st had a severe fit. 23d, Took drach. ii. every half hour, beginning at 1 P. M.; but the fit came on half an hour after 2, immediately after the last dose. 29th, After having several fits, he began the bark to day, before the sweating ended, and took drach. ii. for a dose, each half hour, till he had

had got an ounce. After this he had not another fit.

EXPER. V. June 6. Peter M'Queen, 25, had laboured under a tertian for two weeks. Cap. inf. amar. cum dupl. fenn. unc. iv. which operated eight times. 7th, Took his fit at 4 A. M. When his sweating was near ended at 1 P. M. took drach. i. of bark, which was repeated every hour for four times. Had no more fits.

EXPER. VI. June 12. Andrew Wilson, 19, has had a tertian for a fortnight. He got a vomit and infus. amar. cum fenn. 17th. Last night the fit came on; and, when going off at 3 A. M. got drach. ii. of bark; and at 5 A. M. another dose. 19th, Had a slight coldness last night, but nothing like a fit.

EXPER. VII. Feb. 12. 1776, Murdoch M'Leod, 30, has been ill during a week of a quotidian, which attacks him at 4 P. M. After a vomit and purgative, on the 16th took p. cort. drach. i. at 12; which was repeated at 1, 2, and 3 P. M. After this he had a fit, but no more.

EXPER. VIII. March 22. Donald Coutts, 21, has had a quotidian for three weeks, got a vomit and purgative. His fit comes on at 8 P. M. April 1. got p. cort. drach. i.

6 CLINICAL EXPER.

i. at 4, at 5, at 6, and at 7 P. M. The fit came on at 8 P. M. as usual. Between 9 and 10, was seized with vomiting, during which he threw up his powders. Had no fit on the 2d, but a severe one on the 3d. After this he got the bark at proper intervals during the intermission, and the ague was cured.

EXPER. IX. Feb. 27. Isobel Sutherland, 36, seized with a tertian three weeks ago. She got two vomits and a dose of physic. March 8. the fit came on this morning at 8 A. M. When it was over, she took a dose of bark, drach. i. at 4, 5, 6, and 7 P. M. She had no fit at the usual time, but took afterwards more bark for security.

EXPER. X. March 23. Henrietta Sutherland, 16, in a quotidian ague, got a vomit and rhubarb. April 2. seized with her fit at 8 A. M. At 2 P. M. when the sweat was going off, began to take bark, drach. i. and repeated it every hour for four times. 3d, Had no cold fit, but a little of the hot. 4th, Complained of a pain in her side, for which she was bled; but she had no more paroxysms.

EXPER.

EXPER. XI. March 10. 1774, Isobel Cummin, 16, in a quotidian, after a vomit and phyfic, on the 15th took four doses of bark, drach. i. after the fit. The second day, a slight fit appeared, after which the same number of doses were repeated. Still the fits appeared, though gentle. 25th, Was ordered to take the same number of doses for four hours before the fit. After taking three doses, the fit came on. 27th, Was ordered to take three doses, of drach. ii. each, before the fit, which she did; but threw them up during the fit, which still attacked her. She took the same quantity, in six doses, after the next fit, which stopped it for several days; but the ague was not compleatly cured till P. Serpent. was joined to the bark.

EXPER. XII. Nov. 23. 1778, Elizabeth M'Kenzie, 25, in a quotidian, took, each hour, p. cort. Peruv. drach. i. at four times, just before the fit. After this, she had two succeeding fits, which were slighter than usual. The bark was repeated in the same manner; but she had no more fits.

EXPER. XIII. Nov. 26. David Stewart, 36, seized in the Fens of Lincolnshire,

shire, had, for several months, laboured under an ague, sometimes tertian, sometimes quotidian. He was ordered four doses of the bark, as above, to be taken each hour before the fit. But he took only three doses, as his fit came on before the fourth was taken. After this, his fits still continued. After the second fit, he took three doses of drach. i. each, as soon as the sweating was over. This stopped the return of the fits for some time.

EXPER. XIV. Jan. 23. 1779, John Grant, 35, had first a tertian, then a quotidian. He got the bark, drach. i. at four times, just before the paroxysm. He had one fit as usual. But the succeeding were slighter, and without the cold stage. More bark was necessary to compleat the cure.

From these experiments, we may conclude,

1. That the bark is more efficacious in stopping the paroxysm of intermittents, and curing them, when given at the end of a fit, or at forty hours distance from the succeeding fit, than two, three, or four hours before it. *1/2*, In Exper. I. II. III. VII. VIII. XII. XIII. XIV. it was
given

given just before the fit; but in none of them was it prevented. But, in Exper. V. VI. IX. X. XIII. when given after the fit, it always succeeded. In six of the former, half an ounce was given, which was also the quantity used in the latter. In the remaining two, not above half that quantity was given. *2dly*, Though the former argument appears strong, still some dubiety may remain, as it may be said, that, had the bark been given in the former cases after the fit, it would likewise not have succeeded; and, in the latter, if given before the fit, it would have succeeded. To render an experiment of this nature entirely decisive, it must be tried on the same patient. With this view, I made the IV. XI. and XIII. experiments. In the XI. the ague was obstinate, and yielded only to other medicines joined with the bark. But, even in that, the bark, after the fit, succeeded better than before the fit, as it was stopped for some days. But, in Exper. IV. and XIII. the question is clearly decided. We see in the former, first half an ounce, then an ounce given, before the fit, without success. After waiting till some fits were over, that no effects might be attri-

buted to the previous exhibition, an ounce was given after the fit, and the next was stopped. In the latter, the experiment is equally decisive. No room for doubting now remains. Hence, the same quantity of bark, of which half an ounce was generally used, will, when taken towards the end of the sweating, cure an intermittent; but will not, if given from one to four hours before the cold stage.

2. That bark given a few hours before the fit, seems to add to its severity. In Exper. VIII. and XI. vomiting was excited; but in none of these, where it was given after the fit, was this effect produced. Hence it is probable, that the other symptoms, had we remained to observe them with the patients, would have been likewise exasperated. It must have the same effect, almost, as when given in the fit. As bark, in powder, lies long in the stomach, especially of one affected by an approaching fit, much of it must remain during the whole paroxysm, and must augment the spasm, increase the fever, and diminish the sweating.

3. That, as bark, when given at a greater distance from the fit, becomes more successful, it follows, that some considerable time is required for its operation. In
Exper.

Exper. VII. XII. and XIV. when given before the fit, it did not stop the immediate, but the second paroxysm. This effect occurs every day, in giving bark during the whole interval; it stops the second, though not the first fit. Does it not require at least two or three days, in each disease in which it is given, before all its good effects are observed? This is the case in the typhus nervosus, typhus putridus, dyspepsia, gangraena, &c. Were it to act on the stomach alone, it must still require some time to be dissolved, and to impregnate the gastric fluids before it could produce any effects on that part.

4. That the length of time before its effects appear, makes it highly probable that its operation is not on the stomach, or on its nerves, alone, but that it must enter the vascular system, and there perform its chief effects. In thirty or forty hours, it has time sufficient for producing these. Its success, when applied to the skin by a bath or vest, shows that the topical action on the stomach is not necessary. If it acts mostly on the nervous system, as appears probable, though we cannot exclude its action as an astringent on the muscular, or other less active solids,

it

it must find a much greater field in the vascular system, and greater sensibility, than in the primae viae.

5. That there appears to be no difference in the effects of the bark given after the fit, whether the ague is quotidian or tertian; and fifteen or sixteen hours appear a sufficient time to enable the bark to produce its effects. These distinctions, therefore, so often mentioned in the schools and by writers, appear not to be of much practical use, as the different kinds so often alternate; which shows, that the cause of these different appearances of intermittents is not owing to different miasmata, but, perhaps, to some more changeable circumstances of the patient.

S E C T. II.

Experiments upon some remedies used in the Typhus Nervosus.

Inflammatory diseases, in general, have much diminished, and those of an opposite nature have much increased, in the present age. The former, described so often by Sydenham, are hardly to be met with at present in London. In Edinburgh, a pure synocha is seldom seen, even among
the

the commonalty. The low fever, or typhus nervosus, is by much the most frequent amongst them ; and, what is more singular, is confined, as appears by all the cases in my report-books, to the age reckoned commonly most subject to inflammatory diseases, namely, to that between 18 and 30 years. This can never be attributed to the increased force of infection, as our greater attention to cleanliness must diminish that cause, and it is only in few that we can trace any infection; but to the anti-inflammatory and debile state of our bodies, which our present habits of living have induced. I call this disease the typhus nervosus, in contradistinction to the typhus putridus, or petechialis ; which two diseases, I think, ought to be kept distinct, as they appear to me to differ with regard to the places where they are found, the degree of infection which they communicate, the constitutions which they attack, the symptoms attending them, and the remedies used.

The catarrhal and low fevers are the most common in the clinical ward ; and I have had many of both kinds epidemic, that is to say, eight or nine patients similarly

larly affected. This was the case in the years 1773, 74, and 76, when the low fever was common. In the other years, the disease was only sporadic. To describe these constitutions, or their differences, would be useless, as the disease is so well known, and varies so little. Any small variety that appears, arises from the state of the stomach, whether it is affected with nausea and vomiting, or not; of the intestines, whether bound, which they are generally in the beginning, or loose, which they are generally at the end; or of the skin, whether dry or moist. In most of the other symptoms, one typhus is very similar to another. The effects of medicines, accurately settled, in this disease, are of much more moment. Bleeding has been, for a long while, condemned by authors. But sweating was fully as pernicious, as it was more constantly prescribed here, and universally followed some years ago, till experience pointed out its bad effects; and it is now equally set aside with bleeding and purging. Wine is now allowed to be the principal remedy, the good effects of which are already well established. Our
design

design is, therefore, chiefly to ascertain the value of some other remedies.

CORTEX PERUVIANUS.

The bark is recommended, and used in all fevers of this kind. But no author has told us, that it may do hurt, as well as good, or in what situation it may be given with the greatest advantage.

EXPER. I. June 6. 1770. Margaret Baxter, 21, and at that time a wet nurse, in the twelfth day of the fever, complained of difficulty of breathing, sighing, slight dry cough, and gentle looseness, pulse 110 and weak. She got a vomit and rhubarb. 14th, p. 104, some sediment in the urine. Tongue moist. Partial moisture on her skin. Great debility. Cap. P. Cort. Peruv. drach. fs. 3tia quaq. hor. 15th, p. 108, More heat. Thirst and difficult breathing. 16th, p. 112. Slept little. Skin hot. Slight delirium. Urine without sediment for these two days. Tongue dry. Looseness returned. It was then given up, as it evidently did harm. She continued in a similar way, for five days, with clear urine; and then the fever went off by degrees.

EXPER.

EXPER. II. Dec. 29. 1774. David Brown, 20, was in the seventh day of the fever, in which he had headach, slight cough, a pain under the xiphoid cartilage. Urine high coloured, with a thick cloud, and passed with difficulty. Gentle delirium during two hours of the preceding evening. P. 120, and weak. Cap. mixt. Cort. Per. unc. i. 5ta quaq. hor. which dose contained drach. i. of bark triturated with water. On the 8th, p. 102, in the morning; p. 110, in the evening. On the 9th, p. 108, and moisture on his arms. Lay in a comatose state, and had a gentle delirium each night since he began the bark. 10th, p. 94, and a general moisture. 11th, p. 87, and much sweat, which smelled strong. Notwithstanding the coma and delirium, which were common symptoms, at this time, I incline to think that the bark had good effects, as the skin was moist after it. For, when it does hurt, the skin becomes dry, and the breathing worse. But, that it carried off the fever, I cannot assert.

EXPER. III. December 5th, Susannah Wharton, 21, affected with typhus for seven days. Took for some time a solution of tart. emet. On 13th day of the fever, with

with the p. at 92. got P. Cort. Peruv. drach. fs 4ta quaq. hor. 14th, P. 80, Headach better. 15th, All the symptoms gone, and the urine with plentiful sediment.

EXPER. IV. January 2. 1775, Ann Gunn, 24, in a typhus, with a dry tongue, some sweating, difficult breathing, singultus at times, turbid urine, and nocturnal delirium. P. from 120, to 130. In the twelfth day of the fever, when the p. was 108, and weak, and slight subfultus tendinum, she got drach. i. of bark in mixture, every fifth hour. 13th, P. 128, Delirious during the night, and hoarseness. But tongue moist, and subfultus tendinum better. 14th, P. 130, skin dry, and heat greater. 15th, P. 104, A natural stool, and appetite better. 16th, P. 110, sweats much, and three stools. 17th, P. 100, and no complaints. Here the symptoms seem rather to have increased the second and third day after the exhibition of the bark, as the heat, dryness of skin, hoarseness, and delirium, came on; and were not fully compensated by a moister tongue, or less subfultus. On the 4th, she was remarkably better; which change, although it might be owing to the natural crisis of the fever, yet may be attributed

C

buted

buted to the bark, as, about that time, its effects might be supposed to be most powerful.

From these four cases, bark appears to be sometimes hurtful, sometimes useful, in the typhus, according to circumstances. With regard to these, authors are not explicit. They say it is of use when the nerves are affected, the pulse flat, and there is sighing. But that is saying no more, than that the bark in general is good in the typhus. The first case shows, that it is not proper in difficulty of breathing. This observation I have made in other cases; and it is one of the most frequent bad effects of bark to increase such a symptom. When there is general symptomatic sweating, they recommend it; and I agree with them. I have always found it useful when there is a tremor, which is a frequent symptom. We may be almost assured of success, when there is little or no drought. The effects of bark are, in most points, similar to those of wine. There are few diseases in which they are not equally useful, or equally hurtful. They differ in this, that the effects of bark appear much later, and last much longer, than those of wine.

TINCTURA CANTHARIDUM.

Hillary, in his treatise on the diseases of Barbadoes, recommends the tincture of cantharides, given to gtt. xx. twice a day, in some wine-whey, as an useful remedy in the typhus. This was sufficient to induce me to give it a trial, especially as none, so far as I know, had yet been made by any other. The certainty that cantharides were absorbed by the skin from blisters, and the probability that some share of their good effects, in this disease, might be owing to this absorption, was a further incitement.

EXPER V. June 29. 1770. John Johnston, 24, has had a typhus for fourteen days, with vertigo, sighing, slight diarrhoea, frequent sweats; p. 108, and weak. On the 16th, after having got for two days the solution of tart. emet. he began, when his p. was 100, the tinct. canth. gtt. xx, in 6 oz. of wine-whey; and it was repeated twice a day. On the 17th, p. 79, no complaint, except vertigo. A sweat appeared yesterday soon after he took his medicine. 18th, Fever gone; so the tincture was given up. An alteration so sudden,

den, after taking this medicine, leaves some doubt, whether or not this salutary change was owing to it,

EXPER. VI. Aug. 28. Janet Craig, 25, had been affected with a typhus for three weeks. She had got some doses of tart. emet. which had vomited, opened the belly, and sweated her. On the 23d day of the fever, when the p. was 100, ℞ tinct. canth. gtt. x. mucil. g. Arab. aq. font. aa unc. fs. M. cap. ter in die. 24th, P. 100, no difficulty of passing urine. Slept better. ℞. tinct. canth. gtt. xv. muc. g. Arab. aq. font. aa unc. i. M. f. haust. cap. ter in die. 25th, P. 90, thirst diminished; tongue moist; less confusion of head. 26th, P. 80, and stronger; head-ach better. 27th, Fever gone. Here the cantharides appear, without dubiety, to have been attended with good effects.

EXPER. VII. April 7. 1774, Margaret Salmon, 18, had been ill of a typhus for five days. She got a vomit, blister, and jul. salin. On the 12th day of the fever, with sighing, headach, and p. 118, ℞. tinct. canth. gtt. xx. aq. menth. cinnam. f. v. aa. unc. fs. M. f. haust. cap. h. f. et repet. mane. 13th, P. 96, headach easier; urine much increased,

creased. 14th, p. 110, tongue natural, and no drought. As she only complained at present of cough, the medicine was left off. Here it appears to have done service.

EXPER. VIII. Dec. 18. John Finlay, 22, in the eighth day of typhus, with pulse 110, and weak, headach, vertigo, and purging, from tart. emet. which he had got the day before. R. tinct. canth. gtt. xv. muc. g. Arab. aq. cinn. f. v. aa. unc. fs. M. f. haust. cap. ter in die, superbibendo dec. hord. unc. vi. 9th, P. 110, fuller and stronger. Headach and vertigo. Slept better. Each draught produced a sensation of heat in his stomach. 10th, P. 102, urine of straw colour, with light and plentiful cloud. Head a little confused. R. tinct. canth. gtt. xx. muc. g. Arab. unc. i. aq. font. unc. ii. aq. cinn. unc. fs. M. f. haust. cap. u. a. Got an opiate at bed time. 11th, P. 102, thinks himself better, applic. episp. tempor. 12th, P. 96, head easier; slept better; urine plentiful, of a straw colour, and without cloud. 13th, P. 100, complains only of weakness, tremor, and a slight pain of his breast. His medicine was therefore exchanged for wine

wine and castor, which recovered him. The medicine was of some use here.

EXPER. IX. Dec. 4. 1778, Elizabeth Henley, 15, on the 11th day of a typhus, p. 110, got tinct. canth. gtt. xv. &c. every eighth hour. 12th, P. 108, has taken three doses, and felt always a sensation of heat in her stomach after the draught. Some delirium; two loose stools, with gripes; slept some; augeat tinct. canth. ad gtt. xx. 13th, P. 106, urine clear. 14th, P. 82, and stronger; feels some difficulty in passing her urine; no complaints; omittatur haust.

From these experiments, the tinct. canth. to gtt. xx thrice a day, appears to be a very innocent remedy, and scarcely to produce any sensible effects on the human body, except a sensation of heat in the stomach. I gave a third more in the day than Hillary used, so joined the muc. g. Arab. to it. By means of the mucilage, I have been enabled to give gtt. xxxv. four times a day, in cutaneous diseases, and gtt. L. four times a day in a diabetes, without any visible effects on the urinary passages, or elsewhere, except some gripes and slight strangury, which happened in Exper. IX.

As,

As, in most of the preceding cases, the utility of this medicine is without dubiety, I think, that, in the others, therefore, we ought to give the merit to the medicine more than to the critical time in which it was given. More experiments, however, will be required to ascertain its value.

These effects in the vascular system, when exhibited internally, are much less sensible than those occasioned by absorption from blisters, which so often produce strangury, and heat of urine. Is not this a clear proof of a greater quantity entering the habit, or a greater acrimony of cantharides, when they are introduced by the skin, than when given in the preceding method? and hence ought we not reasonably to expect more powerful internal effects than the preceding, from the greater quantity absorbed from blisters? If cantharides, taken by the mouth, produce such effects in the vascular system, much greater should be expected when they enter by the skin.

B L I S T E R S.

There is no remedy, in fevers, that has stood its ground so long as blisters. Authors

thors recommend them in the typhus so strongly, that they order a succession of them ; and the patient suffers much certain pain, want of sleep, strangury, and uneasiness, afterwards, for the sake of advantages, which he, so far as is yet settled, may have but a small chance of reaping. The patient ought to expect advantage in proportion to what he suffers. Let us view a few cases, where blisters, alone, at the time, were used.

EXPER. X. May 22. 1769, James Innes, 21, was seized with fever on the 19th, and complained of headach, thirst, sighing, &c. p. 88, and weak. On the 8th day of the fever, after a vomit and the saline mixture, p. 76, but all the other symptoms worse, a blister was applied to his back, and he got a little wine. 9th, P. 72 in the morning, and 66 at night. 10th, P. 80, headach gone. Suspecting some compression on the brain from such a slow pulse attending a fever, I applied a blister to each temple. 11th, Delirious all night ; a blister applied behind each ear. 12th, Great weakness, deliquium, and sighing ; got a solution of camphor. 13th, P. 108, frequent nausea ; blisters applied to each arm. 14th, P. 108, slept none,
and

and delirious all night. 15th, P. 128, and intermitting. Died. When opened, nothing appeared uncommon in the abdominal viscera. The left lobe of the lungs, towards the inferior part, was a little inflamed. Nothing was found preternatural in the brain, except about two ounces of serum in the ventricles, which may be considered as the cause of the slow pulse. Here the blisters, in succession, did no good.

EXPER. XI. Feb. 16. 1774, Archibald M'Bane, 27, convalescent, after a fever, was seized, on the 11th, with typhus. He got a vomit, solution of Tart. emet. &c. On the 15th day of fever, when his pulse was 120, a blister was applied to his back. 16th, P. 100, slept better. 17th, P. 96. 18th, P. 116. The fever continued for six or seven days. Here the blister diminished the fever for two days; but it recurred again, though not in the same degree as before.

EXPER. XII. Feb. 7. Katharine Smith, 35, in a typhus, had blisters applied to her back, her arms, and her side, without any success; and she died on the 17th day of the fever. The vessels of the brain were found much distended with blood. About a pound

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of fluid was found in the thorax. The lungs were very livid, especially the left lobe, in which was found a small quantity of pus. The intestines adhered in several places to the peritoneum, the liver was larger than natural, and in the left kidney there was a small quantity of pus.

EXPER. XIII. April 8. Margaret M'Farlane, 24, in typhus, for five days, with thirst, vertigo, headach, white and moist tongue, no sleep, P. at 90. On the 8th of fever, P. 68, headach and nausea. Had a cold fit last night, after which she fell into a profuse sweat. Got a vomit, and had blisters applied behind her ears. 11th, P. 60, seized with the same cold fit, and sweating after it, during which she died. On opening the head, the vessels of the brain were uncommonly distended with blood. Both lobes of the lungs were much inflamed; and the left adhered firmly to the pleura and diaphragm, was diminished in its size, and its substance much softened. Was the preternatural slow pulse owing to a compression from the plethoric state of the vessels of the brain? It is probable.

EXPER.

EXPER. XIV. Anne Gunn, Exper. III. had a blister applied to her back on the 8th day of the fever, and one to each arm on the 9th. On the 10th, her pulse was considerably quicker, her tongue was dryer, and she was more delirious.

EXPER. XV. Dec. 4. 1776, Isobel Ferguson, 30, caught a typhus by infection. On the 8th day, a natural looseness seized her, and the fever diminished. On the 9th day, a blister was applied to her back. On the 10th, the symptoms were easier, but the pulse much the same. On the 11th, the fever abated a little, and she continued to recover. But, whether this change happened from the diarrhoea, or blister, appeared to be uncertain.

EXPER. XVI. Jan. 16. 1777, James Ramsay, 24, in a typhus, with delirium, subfultus tendinum, alternate hot and cold fits, &c. On the 12th day of fever, when the P. was 132, a blister was applied to his back. During the night he was less delirious, slept some, and was at times distinct. In the morning, his P. was 115; in the evening, 144. He died on the 16th, and, when opened, nothing preternatural was found in the head, thorax, or abdomen.

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These few cases have been selected, as in them the blisters were more unconnected with other remedies. Many more could have been produced to the same effect, where other medicines accompanied them ; but then our conclusions would not have been so certain.

From the above experiments, we see what small advantage arises from blisters applied in the typhus. Out of seven cases, that in Exp. XI. was relieved for two days ; and the advantage in Exp. XV. was probably owing to another cause. The other five were not sensibly relieved. In some of them, the pulse rather quickened after the application. Blistering seemed to have no good effect in any of the epidemic low fevers of the years 73, 74, or 76, in the clinical ward ; so that I, from that time, almost gave over applying them. The advantages that result from them certainly do not counterbalance their disadvantages. I have long found them of more use in topical inflammatory fevers, than in the typhus. The reason seems to be this. The stimulant power of blisters lasts only for two or three hours during the pain, in which time the pulse commonly becomes quicker.

quicker. After this, their antispasmodic effects take place; and the pulse, when they are successful, becomes slower. It is to this latter effect that topical inflammations owe their cure. But it can be of little use in the typhus, as every symptom in its progress points out extreme preternatural relaxation, rather than preternatural constriction, or spasm. They can have no advantage, therefore, in this disease, but from their stimulant power, which lasts too short a time to be of much service.

Among the many disadvantages of blisters, strangury is none of the least. I find it easy, however, to prevent this effect; so that I seldom or never observe a strangury following a blister. Dr Greenfield was the first who, in the beginning of this century, discovered, that camphor had a power of correcting this effect of cantharides. Some, however, have doubted this quality. I tried, many years ago, camphor rubbed on blisters, found it to answer, and have always used it with the greatest success. I once removed, suddenly, a strangury in a typhus, by rubbing ol. camph. on the ancles. I wish we could always proceed on as certain facts. Notwithstanding

ding the advantage which rubbing a little powder of camphor on the blister has in preventing one of its uneasy effects, yet I believe it is scarcely, if at all, used. More trust is put in great quantities of drink, which often load the stomach too much, relax it, and increase the general debility.

Blisters, therefore, appear of little use in curing the typhus; yet they are of the greatest utility in relieving the severe head-ach, a troublesome symptom which always attends it. Blisters applied to the temples remove this symptom most successfully, without directly producing any good effect on the fever; though they may indirectly, by removing one cause of watchfulness and weakness. To prove this by facts, would be to quote almost every low fever that has appeared in the clinical ward. I was led to this application, by observing, that the rind of a lemon, cut off thin, and the inside applied to the temples, excites a redness, and cures a headach. I tried blisters to the temples in a remittent fever, in Flanders, many years ago; and they succeeded beyond my expectation. I have continued the use of them since, introduced the practice
into

into the clinical ward, and used them in every typhus with the greatest degree of certainty. This application has been much confirmed, though it did not take its rise there. This has almost superseded the use of blisters to the head, which have their inconveniencies.

The effects of these topical blisters depend,
 1. On their stimulus. The temples are very sensible, as the patients complain much of the pain of blisters applied there. It is near the part affected, and communicates directly with the nerves of the eyes. If the pain arises from the nervous system alone, nothing is more proper than nervous counter-irritation to relieve it, as the nervous system is but rarely capable of suffering two pains at once. In this way all rubefacients become antispasmodics. 2. On the evacuation produced. The external and internal vessels arise from the same source, often communicate through the cranium, and always by means of the arteria orbitalis. Hence, if the headach arises from a plethoric state of the brain, it must be cured by the depletion which follows. Hence this application, and a running kept up for several days, by issue-ointment, is the most successful remedy in obstinate ophthalmias.

FOMEN-

FOMENTATION OF THE LEGS.

This practice was first introduced, so far as I know, by the regimental surgeons of the army in Flanders, in the year 1742-3, and was much used at that time, by all of them with success, in a typhus, which is described in the Medical Facts. Since that time it has become a common remedy here.

EXPER. XVII. Katharine Smith, Exp. XII. was fomented on the 9th day. Her pulse, during it, became fuller, but not quicker. Sweated after it. Head easier.

EXPER. XVIII. Archibald M'Bane, Exp. XI. while his feet were fomenting, fell asleep, and slept for eight hours. His pulse quickened a little during the operation.

EXPER. XIX. John Finlay, Exp. VIII. after fomentation, his pulse was fuller and stronger.

EXPER. XX. December 4, 1774. Gavin Kerr, 20, fomented on the 9th day of his fever, when his pulse was 104, with inflamed eyes, tremors, headach, thirst. Next day, P. 90; and, though the fever continued, the pulse never returned to its former quickness.

EXPER.

EXPER. XXI. Isobel Ferguson, Exp. XV. Fomentation applied on the seventh day of the fever, and afterwards continued. She seemed eased by it.

EXPER. XXII. March 23. 1778. William Nileson, 21, in the 10th day of a typhus. His P. 90 when the fomentation was begun. In half an hour it was 98, stronger, and more regular. Though continued twice a day, it produced no visible effects.

EXPER. XXIII. Eliz. Henley, Exp. IX. on the 7th day of a typhus, while her P. was 126, had her legs fomented. Half an hour after, her P. was 136, but fuller. An hour after it was 126, and still continued fuller. She slept better the following night, and her headach was easier.

The effects of fomenting the legs appear, from the above cases, to be useful, as every application that makes the pulse stronger must be. It seems to dispose much to sleep. It disposes, also, to a moisture of the skin, which will be useful when it is dry; but which may be hurtful, in a disposition to symptomatic sweating. It must be of greatest use when the tongue is dry.

Its effects, however, must depend much on the degree of warmth. If the heat is within 100 deg. of Fahr. therm. it will stimulate less, and relax more. If above that, it will stimulate more, and relax less. The fomentation was tried when the heat was not above that of the human body, and the pulse became fuller, not quicker. But the heat should be greater, that it may, when applied in the typhus, stimulate more, as the chief use of it is to raise the pulse.

C A M P H I R E.

Camphire has been recommended and used in the typhus.

EXPER. XXIV. July 30. 1769. Duncan Clerk, 13, with headach, purging, nocturnal delirium, &c. 12th day of fever, ℞. camph. scrup. i. dissolv. in muc. gum. Arab. unc. i. add. aq. cinn. f. v. unc. i. aq. font. unc. ii. M. cap. unc. i. 4ta quaq. hor. When he got the dose, his P. was 112, and heat 102 deg. Ten minutes after, P. 104, and heat the same. Twenty minutes after, P. 108, and heat the same. On the 14th, his P. was 84; but I attributed the change more to some wine he had got, than to the camphire.

EXPER.

EXPER. XXV. James Innes, Exp. IX. got of camphire, dissolved as above, gr. vii. thrice a day. His P. next day was quicker, and he was delirious during the night, till he died.

EXPER. XXVI. Katharine Smith, Exp. XII. got camph. gr. v. every five hours; but the quickness of pulse, and the symptoms increased, till she died.

EXPER. XXVII. Dec. 20. 1774, Mary Wilkie, 20, obstructed for six months, began the solution of camphire, i. oz. every fifth hour, on the fifth day of the fever, when her P. was 120. Next day, P. 92, and headach easier. When her P. was 94, she got the above dose. Ten minutes after, P. was 86. Half an hour after, it was 90. The exhibition of this medicine was attended with a gentle moisture, and seemed to procure rest.

From two of these cases it would appear, that camphire is of use in the typhus. But I am still dubious, with regard to the salutary effects of camphire in this disease, and must reserve the decision for further experiments, as the alteration in Exper. XXIV. might have arisen from wine; and, in Exper. XXVII. from the particular nature of the fever, which, perhaps, took
its

its rise, or was connected with amenorrhoea. I am the more inclined to this opinion from private practice, in which I have never seen any good effects from camphire in such fevers; sometimes, perhaps, bad effects. No sedatives, probably, can be good in low fevers, as they must all act by diminishing the nervous influence; and camphire appears, from the preceding experiments, to be of this class. As it is generally agreed, that camphire is good in inflammatory diseases, one would not expect any advantage from it, in those of an opposite nature, the anti-inflammatory.

ANTIMONIALS; TARTAR EMETIC, AND JAMES'S POWDER COMPA- RED.

The preparations of antimony, after being long exiled from the apothecaries shops, and prescriptions of physicians, under the severest penalties, have at last become the steadiest antifebrile medicines which we know. Different preparations have, in their turn, shared the public favour, such as the pulvis Carthusianorum, vinum benedictum, tartar emetic, and emeticum
mitius

mitius Boerhaavii, which, with no material alteration, is now called James's powder. These two last are, at present, most used; the former by physicians, the latter by those not of the medical line. A candid comparison of them, from the experience of many years, will, I hope, be agreeable to both. I have always made use of James's powder, sold in the shops; but this last winter I sometimes used that made in the Infirmary; and I was not sensible of any difference in their effects. The solution of tart. emet. mentioned, consists of gr. ii. dissolved in vi. oz. of water. I confine myself at present to the typhus fever alone.

EXPER. XXVIII. May 13. 1770. Thomas Bailie, 32, had been in a typhus for some days, attended with headach, sweating at times, tremor, and dyspnoea. Got a vomit. 14th, P. 104, cap. sol. tart. emet. unc. i. 3tia quaq. hor. 16th, P. 78, tremor less. No nausea or sweating; but belly loose and griped. 18th, Severe purging. 19th, P. 100, purging gone. Solution has no sensible effect. 21st, Pulse still quick, and headach, The solution exchanged for bark and wine.

EXPER.

EXPER. XXIX. Joan Herrin, 18, on the 9th day of her fever, began the solution, unc. i. 3tia quaq. hor. It produced a nausea at first, and the symptoms abated a little on the 11th day. It afterwards purged her, and was continued to the 16th without any relief.

EXPER. XXX. Archibald M'Bane, Exper XI. in a typhus for seven days, got for six nights, at bed-time, tart. emet. gr. i. laud. liq. gtt. xx. aq. font. unc. fs. M. f. haust. without any other effect than that of sleeping better. About the 20th day of his fever, he began with p. Jacob. gr. v. 4ta quaq. hor. The dose was increased next day to gr. viii. and the day after to gr. x. without any visible effects, but that of procuring better rest. This medicine was continued for five days, after which the fever went off.

EXPER. XXXI. March 31. 1774, William Wightman, 23, seized on the 24th. Complained of vertigo, thirst, weakness, nausea, and delirium during the night. He had been bled, and afterwards lost much blood from the opening of the orifice. On the 9th day of the fever, P. 110, tongue white and moist, and without a complaint;

complaint; got fol. Tart. emet. unc. i. 4ta quaq. hor. 10th, P. 130, and weak. After the first dose, fell into a sweat, which still continues. Belly bound; urine passed insensibly. A water clyster was ordered, which operated well, and 2 oz. of wine were given every four hours. 11th, P. 168, sweating still continues; says he is very well. Died. On opening the head, the vessels on the surface of the brain were much distended with blood. When the medullary part of the brain was cut, there appeared numerous small points of blood; and the choroid plexus was somewhat inflamed. The intestines were found much distended with faeces, which were hardened in the rectum. The liver and spleen were of a livid colour, but of natural size and firmness. The left kidney was inflamed and enlarged. Here is an instance of a mortal typhus without a complaint, of which I have seen many. Such cases are the most dangerous, as they show the sensibility much diminished. Here the Tartar emetic did, at least, no good.

EXPER. XXXII. March 16. Francis Brooks, 16, seized on the 13th with typhus,

phus, attended with weakness, vertigo, cold, hot, and sweating fits, headach, noise in his ears, and loose belly. Got a vomit. 6th of fever, P. 112, got P. Jacob. gr. xv. h. f. It was increased next night to scrup. i. and continued. He had a moisture each night, and slept better. The fever gradually decreased, and went off about the 14th. The good effects of the Pulv. Jacob. were sensible here.

EXPER. XXXIII. March 5. Euphemia Pettie, 22, who had not menstruated for 12 months, was taken ill on the 3d. Was bled, and got a vomit. 6th of fever, P. 100, soft and weak. Pulv. Jacob. gr. v. conf. ros. q. f. f. bol. cap. 6ta quaq. hor. It had no sensible effect. Next day the dose was increased to gr. viii. which produced nausea, and opened the belly. 8th, P. 90, dose increased to gr. xii. 9th, P. 86, same effects. 10th, P. 76; her remaining complaints seem to arise from amenorrhoea.

EXPER. XXXIV. Gavin Kerr, Exper. XX. on the 10th day of fever, P. 90, no sleep, belly bound. ℞ Pulv. Jacob. gr. viii. &c. et rep. 8va quaq. hor. 11th, P. 97, after his dose, last night vomited and
 purged

purged twice ; but lay quieter, and slept better. The medicine had no effect this day. 12th, P. 86, bolus produced nausea, sweat, and loose belly. Slept well, and all symptoms easier. The dose was increased to gr. xii. which continued to produce the same effects. He got a crisis on the 14th.

EXPER. XXXV. Dec. 5. 1774, William M'Pherson, 20, in the 5th day of a typhus, and P. 116, got sol. Tart. emet. unc. i. 3tia quaq. hor. He took it for two days, without producing any sensible effects. 7th, P. 116, and feeble. Delirious. Tongue dry. Was ordered Pulv. Jacob. gr. viii. &c. h. f. et mane. It produced no sensible effects. Delirium continued each night. Was ordered a blister, fomentation to his legs, and wine. His medicine was increased to gr. xii. &c. 8va quaq. hor. 11th, P. 116, two loose stools. Slept better. 12th, P. 110, purging severe, which made me stop the bolus's. But at night his P. was 96, and fuller. 16th, Fever went off. It is not easy to say whether the purging was owing to the disease, or Pulv. Jacob. I am apt to attribute it to the former, as it is not a com-

mon effect of that medicine. But, from whatever cause, it seems to have done service.

EXPER. XXXVI. John Finlay, Exper. VIII. on the 6th day of the fever, P. 110, and weak, got sol. Tart. emet. It vomited him, and produced purging, which continued, without any good effect; so the medicine was stopped.

EXPER. XXXVII. Dec. 3. Nancy Anderson, 24, in the 16th day of fever, when P. was 100, got sol. Tart. emetic unc. i. 5ta quaq. hor. It produced nausea, vomiting, loose belly, and moisture of her skin. 17th, P. 102, and weak, cap. Pulv. Jacob. gr. viii. &c. 8va quaq. hor. P. 110, had nausea after each bolus, vomiting, purging, and general moisture. Slept some. 19th, P. 86, no complaints.

EXPER. XXXVIII. James Ramsay, Exper. XVI. on the 6th day of the fever, got Pulv. Jacob. gr. v. bis in die. The dose was increased to gr. viii. It produced no sensible effects; so we had recourse to other medicines. On the 12th, the sol. Tart. emet. was tried; but it was attended with no visible or successful effects; and he died.

EXPER.

EXPER. XXXIX. Jan. 24. 1777, Robert Finlay, 20, on the 11th day of the fever, P. 108, got sol. Tart. emet. unc. i. 3tia quaq. hor. 13th, P. 108, the medicine produced no sensible effects; cap. unc. i. fs. pro dos. 14th, P. 92, nausea and moisture. Recovered.

EXPER. XL. Dec. 11. 1776, Betty M'Kain, 22, on the 11th day of fever, with bound belly, and P. 108, got Pulv. Jacob. ppt. in nosocomio, gr. v. opii gr. fs. &c. morning and evening. 12th, P. 80, no nausea after the bolus last evening, but sweated all night. Had a nausea after the bolus this morning. Recovered.

EXPER. XLI. William Nielson, Exper. XXI. on the 8th day of fever, with belly rather loose, and P. 84, got sol. Tart. emet. unc. i. 3tia quaq. hor. 9th, P. 96, and weak. Vomited after each dose; belly loose; delirious during the night; slept none. The solution was given up. 11th, P. 100, and comatose. Cap. statim Pulv. Jacob. gr. viii. conf. ros. q. s. et rep. h. s. 12th, P. 94. more quiet; no nausea, purging, or sweating. Rep. bol. ex Pulv. Jacob. gr. xii. 8va quaq. hor. 13th, P. 94. takes the bolus's regularly, and sleeps much, and gently.

gently. 14th, P. 90, less delirious. Sleeps much. Bolus's have no sensible effect. Fever after this disappeared. Here the good effects of James's powder were superior to the Tartar emetic, as they were less evaculative, and more quieting.

EXPER. XLII. March 21. 1778, William Pearse, 20, has had a typhus for four days ; P. 106 ; frequent vomiting. Cap. sol. Tart. emet. unc. i. 3tia quaq. hor. Vomited after the two first doses ; slept till towards morning, at which time a sweat broke out, and P. 75. At night, P. 62. The fever went off, and on the 7th day from the first attack it returned again, continued for three days, and then disappeared.

EXPER. XLIII. Jan. 27. 1779, George Dickson, 20, on the 10th day of a fever, in which his belly was rather loose, got the solutio Tart. emet. It vomited and increased the purging to such a degree, that it was given up. On the 15th day, he began James's powder, gr. v. thrice a day, which were gradually increased the following days to gr. xii. These doses produced a moisture on his skin, and at last vomited, but did not purge him. He recovered.

EXPER. XLIV. Dec. 22. 1778, John Leucher, 18, on the 8th day of the fever, got the solution of Tart. emet. It produced nausea and purging. On the 10th, got Pulv. Jacob. gr. v. 8va quaq. hor. On the 11th, got gr. viii. and the day after, gr. xii. These quantities excited a moisture and sweat only, but no sickness or purging; for his belly was rather bound. On the 13th, the fever went off.

From these facts, the following conclusions arise :

1. In thirteen cases of typhus, where Tart. emet. was given, two were cured by it, one relieved, and ten received no benefit. That is, indeed, but a small proportion of the successful to the unsuccessful cases, and shows, that it is not so beneficial in this fever as in others, in which it oftener succeeds. In eleven, where Pulv. Jacob. was given, ten were cured, and one died; that is a very great proportion of cases where it succeeded, to those where it did not succeed, and shows great febrifuge powers in that medicine. On comparing, therefore, the two medicines, James's powder appears to be a more valuable remedy in the typhus than Tart. emet.

2. The effects, especially the evacuative, of Tart. emet. are stronger than those of James's powder. The Tart. emet. generally vomits, often purges much, produces a moisture, and sometimes sweating. It purged in seven of the thirteen cases. But the effects of James's powder are much gentler. In two cases only it vomited; in two only it purged, and generally was attended with a gentle moisture. It commonly produces a calmer state, and sleep, which the Tart. emet. seldom does. It often relieves the headach. These very different effects are not to be attributed to a greater proportional dose of Tart. emet. than of James's powder; for, in three of the cases, the former medicine produced no observable effects; and a third of a grain, after many trials, is the quantity I can most rely on to produce any sensible effect on the stomach. Besides, the doses of James's powder, exhibited in the preceding experiments, are much greater than generally given here.

3. From the effects of the two medicines, as above stated, we may, perhaps, see the reason, why Tart. emet. is not so successful in the typhus, as in the synochus; nor so useful in the former disease

as

as the Pulv. Jacobi. That fever, especially in its progress, becomes worse after evacuation. I have seen purgatives, clysters, and gentle sweating, hurtful in it. It can be no surprise, then, that a medicine, such as the Tart. emet. which evacuates by the belly and skin so powerfully, should produce no good in the typhus, or rather that it should do hurt. This is strongly verified by the above cases. In Exper. XXXI. where it sweated most, the patient died. In none of the cases where it purged, did it do service. In Exper. XXIX. while it produced a nausea, it relieved. After the purging came on, the fever increased. I am always obliged to mix laud. liq. with it, or to give it up when it has such an effect. In the only two cases where it was of use, it produced nausea and moisture in one, and gentle vomiting and moisture in the other. Tart. emet. acts more on the intestinal canal; James's powder more on the skin. If the cure depended on puking, as in many diseases of the lungs, intestinal canal, &c.; if we wished to make a sudden and violent stimulus on all the organs of evacuation; we should use the tartar emetic. But in delirium, want of
sleep,

sleep, loose or irritable belly, James's powder ought to be preferred.

4. As to the quantity of Tart. emet. given for a dose, it may be either 1-4th or 1-3d of a grain. The former often produced no effect on the stomach, so that 1-3d was always used for a dose. In giving James's powder, I chuse to begin with five or six grains in the form of a bolus, thrice a day, as less than that quantity can produce no visible effect, and more may operate too strongly. The dose may be augmented afterwards gradually, until it produces some sensible effect on the stomach, intestines, or skin, which it does generally when 10 or 12 gr. are given. I have often increased the dose to scrup. i. in inflammatory cases; but we can rarely go so far in the typhus, as, in that disease, the intestines are more irritable.

5. As to the time of continuing both, we have no general rule to determine us, but their effects. If these are good, the medicine must be continued till the fever goes off, or a crisis appears. In two cases the Tart. emet. was continued for eight days. Its effects are generally produced sooner. If it is attended with any evaculative effects, that length of time may debilitate

debilitate too much, and suspend the use of other medicines, we may allow a longer time to James's powder, as its effects are more gentle, and as it seems, from these cases, to require longer time.

6. It is difficult to settle the mode of operation of these two medicines. But we can, from the above facts, say negatively, that they do not cure from evacuation ; as, in two of these cases where James's powder succeeded, the patients slept only better, without any sensibly increased evacuation. The same fact occurs every day in the use of tart. emet. We can say further, that even the evacuations produced do not arise from any nausea ; as, in the above cases, evacuation by the intestines and the skin was often produced, without any preceding nausea. This likewise frequently occurs. Do they act by a general stimulus ? This is probable, from their general evacuative powers ; from their being hurtful in the spasmodic state of fevers ; from their being most successful when the exacerbation of fever is over ; and from being most useful, when the pulse is just below the natural standard, with regard to weakness.

O P I A T E S.

In inflammatory fevers we are, perhaps, justly afraid of prescribing opiates, as they diminish all the excretions, increase the heat and drought, and too much deaden those sensations of pain, which must often guide our operations. But, whether such considerations can take place in the anti-inflammatory fevers or typhus, may be very much doubted. Such medicines as repress excessive evacuations, and such as are, in other cases, heating and stimulating, generally are useful in it. The experiment is, at least, worth the making. I have often given opiates, when the belly in such fevers is loose, with advantage; and they are often joined to tart. emet. to diminish its purgative, and increase its sudorific effects, while the opiate is rendered, at the same time, less sedative. But the present experiments go no farther, than endeavouring to alleviate a troublesome symptom of the typhus, want of sleep, which, if they do, they are of no small utility.

EXPER. XLV. John Finlay, Exp. VIII, in the seventh day of the fever, had slept
none

none since he was attacked. R. Laud. liq. gtt xx. aq. cinn. font. aa unc. fs. M. cap. h. f. An hour after he got it, his pulse was fuller and stronger. Slept better. Pulse the same next day. He got it for five nights, and always slept better.

EXPER. XLVI. David Brown, Exp. II. in the seventh day of his fever, during which he had slept none, got the same draught at bed-time. He slept some. It was repeated with advantage.

EXPER. XLVII. Ann Gunn, Exp. III. in the eighth day of the fever, having slept none the night before, from vomiting and purging, excited by a small dose of vin. antimon. Got the same draught at bed-time. She slept none. Sweated much, and had a slight degree of singultus. But her pulse was less quick. It was not repeated, as she began P. Jacob.

EXPER. XLVIII. William Nilesen, Exper. XXII. belly loose, slept none, and delirious during the night, got laud. liq. gtt. xxv. &c. h. f. Slept frequently during the night, and much during the forenoon. Looseness gone. His pulse less frequent. The castor was substituted for it, which did not succeed so well.

EXPER.

EXPER. XLIX. William Pierce, Exp. XLII. with purging, cough, and want of sleep. Got on the 9th day laud. liq. gtt. xx. &c. h. f. Slept some, and was a little delirious.

EXPER. L. November 23. 1778. Ann Riddle, 23, in the eighth day of typhus, attended with headach, cough, and want of sleep. When her P. was 140, got laud. liq. gtt. xx. &c. h. f. She slept better, and thought herself much refreshed. Her P. next day was 126. The draught was continued, and the fever went off.

EXPER. LI. Elizabeth Henley, Exp. IX. in the eighth day, got laud. liq. gtt. xx. &c. h. f. and she slept for three hours, and P. calmer.

EXPER. LII. December 17. Ann M'Queen, 20, in the seventh day of fever, P. 118, got laud. liq. gtt. xx. &c. h. f. Slept well and calm, having been delirious the preceding night. Next day P. 82.

It appears, therefore, that opiates procure rest in the typhus, without any disadvantages attending their use. I cannot attribute the delirium in Exper. XLIX. to them, as it often takes place the first night,
when

when the patients begin to sleep naturally, after the fever is gone. It would rather appear, from Exp. XLV. that they acted as cordials in the manner that wine does. Perhaps the doses were too small to produce that effect, as such cases require greater quantities of wine, which in small doses is not attended in the typhus with its usual effects. Perhaps the above quantities were not even sufficient for procuring sleep.

Want of sleep is a distressing symptom. Besides, it debilitates much, and adds to the weakness natural to this fever. Whatever gives sleep, must obviate these effects. The powers of nature must be stronger after opiates; more especially, if they act as a cordial, which I imagine they do. There is no fear of inducing any inflammatory state in such cases. If we could, perhaps it would be of advantage. I can see no reason why we should not procure sleep artificially. Opium is more to be depended on than camphire, castor, or *sal sedativum Hombergii*, which last I have often tried, and never but once found it succeed; and, besides, it seems too antiphlogistic for such a state. Opium is, therefore, alone to be trusted. It becomes
more

more necessary and more useful than the above sedatives, where looseness or cough prevail.

P E T A S I T E S.

I had heard that the petasites, or butterbur, had been used with success, in Muscovy, in a malignant fever, which prevailed there some time ago, and I have been desirous ever since to try its effects in the typhus; but could not till lately procure it.

EXPER. LIII. November 23. 1778. Ann Riddle, took it from the eighth to the eleventh day of the typhus, beginning with drach. ss. and increasing the dose to drach. i. thrice a day. But it was attended with no success. It produced no sensible effects; and the pulse was not altered by drach. i. The fever diminished during its use, which could hardly be attributed to the effect of the medicine. From that trial I have no opinion of its powers, and shall scarcely try it again. Besides, from its taste, we cannot have a high opinion of its effects, which seem very innocent.

CONCLUSION.

The preceding experiments, we hope, will not be found altogether without utility. It is of great use in medicine, to show, that what we trust to does not deserve our confidence. Camphire is of this kind; and I am much mistaken if it is not even hurtful in the typhus. Blisters do not merit the trust we have so long placed in them. If tartar emetic is found less useful than what it is at present thought, it is the result of accurate experiment. James's powder appears worthy of the confidence the public has so long, but without proper foundation, placed in it. The effects of the bark depend much on the situation in which it is given. Fomentation of the legs is advantageous, though, I believe, more used here than elsewhere. The tinct. cantharidum has met with a fair trial, and has been found worthy of further attention. Opiates, in the typhus, to procure rest, and blisters to the temples, to alleviate the headach, are not, so far as I know, recommended by any author*. The former

* After these observations were written, I was told that Dr Cullen and the late Dr Gregory used sometimes

former have taken their rise in the clinical ward ; the latter have been much confirmed in it. We, therefore, hope that some new light has been thrown on the remedies used in the cure of the typhus nervosus.

S E C T III.

Pleuritis Spuria.

There prevailed in the clinical ward, during the month of December 1776, a fever, with which several of the patients had been affected about the end of November, and which demands our attention, as it was the epidemic of the season, as epidemics are rare here, and as it differed widely in the cure from the pleurisy, though, in many respects, it much resembled this disease. I called it the Pleuritis Spuria, as it was attended with a severe pain in the side. The true pleurisy is a very rare disease here, although many fevers are attended with pleuritic pains.

Hippocrates

times to give opiates in the typhus, in the clinical ward. But I am still ignorant of the result of their experiments.

Hippocrates hath mentioned this fever. Galen has described it well : ‘ Breathing
 ‘ not so severely affected ; fever less acute
 ‘ than in the true pleurisy ; no hardness of
 ‘ pulse ; no expectoration ; no cough ;’ in
 which last symptom our present disease
 differs from that described by him. Sydenham often mentions it, and cautions us
 ‘ against bleeding, as in the true pleurisy.’ Hoffman, in the chapter on pulmonary affections, gives a good account of it. It has not lately been taken notice of. If Sauvages means to describe it under Pleurodyne, he mistakes when he says, ‘ sine
 ‘ pyrexia acuta,’ as this disease was attended with much fever.

The patients were generally seized with shivering, which was soon succeeded by heat. But some of them had no coldness, and were first attacked by heat and moisture. So far this disease, in its approach, resembled the typhus, where, often, we can discover no cold fit ; we had a quartan, at the same time, that had no cold stage. It is not, therefore, a constant and necessary prelude to every fever.

They were soon afterwards attacked with a severe pain in the side, generally amongst

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the

the false ribs, which was increased on inspiration, and made the breathing difficult. The part was not swelled or discoloured; but it was sore upon pressure, and they could not lie on that side. One of the patients could not lie with ease on either side; but of the two rather chose to lie on the affected, which in all the patients was the left side. The pain in the true pleurisy is thought oftener to attack the right than the left side; the truth of which observation may be doubted, as not only the present disease is strongly against it, but in the preceding spring we had an epidemic catarrhal fever very similar to this, where, in all the patients, the pain was situated in the left side. These pains seemed to be seated amongst the intercostals, and periosteum of the ribs, perhaps even in the pleura, as the pains were described to be so superficial, and as they were worse when pressed, or when the patient lay on that side. These pains are commonly looked on by authors as of the rheumatic kind. This opinion may appear more probable, on observing, that the rheumatism was frequent at that time, and that one of our patients had pains in the scapula and elbow.

bow. But still there is much room for dubiety. The part was neither discoloured nor swelled; the pains did not flit like those of the rheumatism; the pulse was not strong, nor the blood inflammatory. Was it of the catarrhal kind, from acrid ferous fluids determined to these parts? This opinion is not improbable. As this was the leading symptom, from its violence and duration, it properly gave name to the disease.

They always had a painful dry cough; sometimes a little viscid expectoration attended it. This symptom arises, I believe, generally from a determination to the lungs of acrid fluids, generated in the body, or retained in it from a stoppage of perspiration, of which near a third part goes off always by the lungs; or from acrid particles introduced into the habit, as in epidemic catarrhs, morbilli, variolae, &c. But may it not arise likewise from irritation of the intercostal muscles? This is probable, as the motion of the intercostals seems to arise from an irritation of the lungs, and as emollient ointment rubbed on the breast eases a cough.

They

They were harraſſed with conſtant ſevere headach, which, with the cough, kept them from ſleeping. As no inflammation of the eyes, violent delirium, or ſtrong pulſe, accompanied the headach, there was not the leaſt ſuſpicion that it aroſe from any inflammation of the brain, or its membranes, which is too often ſuppoſed to be the cauſe of this ſymptom. It ariſes, probably, in this diſeaſe, from nervous irritation ; becauſe ſmells, mephitic air, and nervous poiſons, excite it.

A moiſture of the ſkin generally attended them through the diſeaſe ; and they often felt cold even while ſweating. Sometimes they had alternate ſweating and ſhivering. This ſhows laxity and debility.

The tongue was clean, moiſt, and a little white : The thirſt was not great : The appetite was not ſo bad as might have been expected. They often complained of nauſea. The ſtate of the belly was very various. In moſt, it was natural ; but in one, it was bound, and in another looſe.

The pulſe was from 90 to 136 in a minute, always ſoft and weak ; in ſome, it could hardly be felt. There was little opportunity, from this ſtate of the pulſe, to
examine

examine the blood. A very little was taken from one, which appeared natural. As the pulse was weak, and no inflammatory symptoms, this was probably the state of the blood in all.

From these symptoms, the character of this disease appears to be, ‘ A painful stitch, ‘ constant dry cough, severe headach, difficult breathing, quick and weak pulse.’

It was not attended with any danger ; and generally terminated on the 6th or 7th day, without any evident crisis. In one of the women, it did not terminate until the 11th. But a defect of the menstrual flux, which she had, probably made her worse. The typhus, which prevailed at this time, was finished sooner than usual ; often on the 7th. It never exceeded the 12th.

It is natural to inquire, from what cause an epidemic fever arises. None accused contagion. I scarcely think it arose from miasmata in the air, as it would, in that case, have been more epidemic in the city, and attacked those of higher station, which it did not do. It seemed rather to arise from the application of cold to the body, under certain circumstances. The
half

half of the patients assigned that as the cause of their fever. We must, then, search for its origin in the sensible qualities of the air. There was, some time before this fever appeared, a frost for several days. In this state of the air, perspiration is always great, as is proved from statical experiments; because it strengthens the action of the heart and vessels. To this succeeded very mild weather; the consequence of which was a retention of the perspirable matter. Besides, mild air makes the body more susceptible of cold. Hence arose an immediate spasmodic affection, on the sudden application of cold, to which, perhaps, they had been all exposed; and many had coriza and cough at that time. We had an epidemic catarrhal fever here in the end of the year 1774, and another in the beginning of the 1776, which evidently took their rise from a thaw, after long frost, and were attended, like this, with pleuritic pains; but they differed from it, in being very inflammatory.

In the cure of diseases, we are chiefly conducted by what has previously been observed to be useful or hurtful. But, in an uncommon disease, such as this, that general

neral rule fails. We have still, however, some guides left ; an observation of the occasional causes which excite it, of its symptoms, and of its similitude to some well known disease. We have observed, that mild weather prevailed when it appeared ; that the symptoms inclined more to the typhus than synocha ; that it went off without any remarkable evacuation ; and that it had a considerable analogy to the preceding catarrhal fevers. These considerations rendered great evacuations dubious.

The first question which naturally occurred was, Shall we bleed ? In most attacks on the breast, attended with stitch, cough, and difficult breathing, bleeding is proper, as the cough increases the determination to the lungs. On the other hand, the stitch appeared not inflammatory, the pulse weak, the skin moist, the debility great, and all authors dissuaded from bleeding. As I am mostly determined, in such situations, by the strength of the pulse, I rather shunned bleeding. But, as the pain was violent in one of the patients, a little blood was ordered to be taken. From his weakness, only three ounces were got ; and we did not observe
any

any disadvantage arising from having taken so little blood from this patient, or none at all from others. If bleeding had been used, perhaps the disease would have lasted longer, and the recovery have been more tedious.

Some of the patients had a nausea, which might be thought to have indicated emetics. But, from the remarkable cleanliness of the tongue, from no bad taste in the mouth, from no vomiting attending it, I considered this symptom as rather arising from nervous irritation, the most common cause, than from a disorder of the stomach; perhaps, from a sympathy with the breast, where irritation is often attended with vomiting; so that emetics were not ordered. Besides, the pain of the side would scarcely have permitted their use. After the stitch went off, they were not indicated. Purging did not appear necessary. One of the patients had a looseness during the disease; but it appeared rather symptomatical, than critical. Laxatives must make a determination from the intercostal muscles. I tried them in one. He got a dose of inf. tamar.; after which the pain of his side, and
cough,

cough, were better ; but the pulse was 10 beats quicker in a minute. After the second dose all his complaints were easier. But it was about the time of the crisis.

Sweating may seem to have been pointed out from the moisture of the skin, and appeared safe from the softness of the pulse. But, as I have so often seen it do hurt in similar fevers, it was not prescribed. As this fever appears now to have been of short duration, sweating might have shortened it yet more.

The disease scarcely appeared of that severity as to require antimonials. The patient who had it most severely, got Pulv. Jacob. gr. v. opii gr. ss. for two nights, at bed-time. It occasioned sweating each night, but no sleep.

Blisters appeared of use in removing the fever ; as, in two cases where they were applied, the fever retired after their application. In all those of the catarrhal nature I find them of use.

As the disease was short, and not attended with danger, the alleviation of the symptoms claimed most of our attention. There were four which harrassed the patient

tient much, the stitch, cough, headach, and want of sleep.

The pleuritic pains were so severe, that they required to be relieved. Topical bleeding by leeches, and by cupping, were of some use. A very little blood taken from the neighbouring vessels, by relaxing them most, eases the pain. But blisters were still more effectual; for, besides the evacuation from the part, they excite pain and inflammation there, by which they powerfully relieve the parts first affected.

The want of sleep is a distressing symptom, increases the general irritation, and exhausts the strength. It is a never failing attendant on all catarrhal fevers. There seemed to be no objection against the exhibition of opiates. They were given, and found to promote sleep. I once mixed Tart. emet. gr. fs. with laud. liq. gtt. xx. at bed-time; but the patient passed a bad night.

For the cough, a mixture of the mucilage of gum Arabic was used, without any acid, in which state it is more softening, and antacrimonious. By too great attention to the palate, in mixing syr. lemon. with the mucilage, we hurt the qualities of this
medicine.

medicine. Blisters to the back always relieved this complaint.

The headach was a severe symptom. Blisters applied to the temples never failed to relieve it. They were as efficacious in this fever as in the typhus.

S E C T. IV.

Febris Puerperalis.

Hippocrates has very well described this fever of lying-in-women. A disease so fatal to them, met with little attention till of late, when the morbid body has been much inspected. Though nearly uniform in its symptoms and appearances on dissection; yet, perhaps, no disease is at present less understood. In the clinical ward we can seldom have such patients. But, in Spring 1774, while the lying-in-ward was purifying, two patients were sent to us. As such cases are rare, and as five have died in the lying-in-ward, we shall give a particular account of the cases of the two patients who came into the clinical ward. Jean Reid and Margaret Myrtle were affected so much alike, that we shall

shall treat of them together. As the former case affords the best picture, we shall chiefly describe it, and mark what difference there was in the latter.

March 4. 1774, Reid, 23, delivered of her third child, was taken ill on the 2d day after delivery. February 21. Myrtle, 21, delivered of her first child, after a tedious labour of four days, attended with severe flooding, was seized on the 12th day. Authors have remarked, that this disease comes on from the 2d to the 12th, which our cases shew; and that the sooner it appears, the more dangerous it becomes, which is likewise verified in our patients. Coldness and shivering attended the attack in both. Both were seized with headach at first. This symptom preceded the complaints in the abdomen, of all affected with this disease in the lying-in-ward. Reid was not seized with nausea and vomiting of bilious matter till the 3d day of the fever. Myrtle, from the first, had nausea, and frequent efforts of vomiting, but threw up nothing. Reid was at first costive; but at last a diarrhoea came on, with faeces of a natural colour. But Myrtle had from the beginning a diarrhoea, attended with blood and tenesmus,

mus, which latter continued long after the former left her. This diarrhoea is always symptomatic. It has been observed, that looseness comes on when the vomiting ceases, which happened in Myrtle. This fact, with the quantity of bile which is evacuated by the mouth and anus, makes it probable that the diarrhoea arises from bile.

Reid complained, from the 1st day, of pains in the stomach, and across the belly and loins; on the 2d, of pains in the lower part of the abdomen; on the 3d, of pain in the region of the uterus, and of swelling and fullness of the belly. 4th, The region of the uterus, especially on the left side, was swelled, and sore to the touch, and a pain was felt stretching down the thighs and legs. The last day she had pains in the legs only. Myrtle had pains in the thorax, affecting her breathing, and in the stomach and belly, especially when pressed; so that she could not lie so well on either side, as on her back. She complained of great pain in the thighs, especially when she drew up her legs. Even on a relapse, the pain of her stomach and belly, which had
gone

gone off, recurred again with the fever, which seems to show, that they do not arise from a fixed cause. The belly generally swells on the third and fourth day; and, if it does not fall when the diarrhoea comes on, it is thought a mortal symptom, as the tumefaction must arise from air contained in the cavity of the abdomen, and not in that of the intestines.

In both there was great thirst, with white and moist tongue. Reid had a deep crimson colour on her cheeks, which was also observed in most of those who died in the lying-in-ward; but Myrtle had it not. This symptom is reckoned, especially if attended with livid lips, and a wild countenance, a fatal sign; and this case confirms the observation. Both had constant inclination to pass urine, which they were unable to do. This symptom cannot be any distinguishing mark, as it so often follows difficult labour.

Reid's pulse was from 130 to 146; and on the fifth day was 160. Myrtle's was from 120 to 126, and yet she recovered. Dr Leake fixes the quickness of the P. from 90 to 137. The former patient's pulse was much above that degree. But this
must

must depend much on the irritability of the body. In both, the pulse was weak and soft. But this is not always the case, although it generally happens. I once found the pulse, in this disease, so strong, that it required two bleedings.

Reid had a dry burning heat of her skin; Myrtle had frequent cold fits, after which a dry heat came on, succeeded by sweating. These cases prove the observation of authors to be true, that a dry is worse than a moist skin. In both there was a great degree of weakness; no sleep, even when opiates were given; a cough, which was very severe in Myrtle; no pain, swelling, or secretion of milk in the mammae. There is no wonder that a fever, attended by such great evacuations, should hinder that deposition, which appears critical.

Reid had the lochia in small quantity; and they stopped on the third day. Myrtle had also a stoppage; but then her fever began on the 12th day after delivery. The lochia are not always suppressed, though the disease has been attributed to that cause. Of five in the lying-in-ward, in three there was no alteration; in the rest only a little diminution.

Reid

Reid had on many parts of her body small red tumors under the skin, moveable and painful; and, on the last day, the back of her right hand was swelled and red. These appearances were uncommon, and not mentioned by any author. Myrtle had a swelling, and severe pain in the left elbow-joint. These, perhaps, were attempts to some critical deposition.

The crisis happens between the 5th and 11th day. Reid died on the 6th, on which day no pulse was felt, breathing very quick, and tongue dry; and yet she was distinct, had no pain, and no moisture on her skin. All those who died in the lying-in-ward, for several hours, and some for several days, previous to their death, became easy, felt no pain, and thought themselves better; but the pulse was quicker, and, as in ours, could not at last be felt; the face was flushed, and the breathing was laborious. These symptoms show no appearance of internal mortification, as it is always attended by a general sweat. When they recover, there is no perfect crisis. On the 10th and 11th days of the fever we found Myrtle much better. She recovered after this for three days; but,

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on getting out of bed, and combing her hair, she relapsed, had delirium, headach, and P. at 156. After she began to recover, her vision was not distinct, and the pupil was much dilated. Her menses appeared a month after her delivery.

On inspecting the body, appearances are found as similar as the symptoms. In Reid, the uterus was not inflamed, and not contracted, as found by Dr Hulme. The os tincae was of a deep livid colour, but not mortified; and it had the same appearance in those who died in the lying-in-ward. The left ovarium was indurated and covered with a whitish membrane, as is sometimes seen on the surface of the lungs, or other viscera. The liver, especially the posterior part, was a little inflamed, and covered with the same membrane. The gall-bladder was much distended with bile. The cavity of the abdomen contained about two pounds of a fetid milky fluid, thicker than serum, with some blood, and curd-like matter, or coagulated membranes in it. In one of them who died in the lying-in-ward, there was no fluid found; in another, it approached to a purulent state; in the rest,

it was sanious ; Dr Hulme mentions fetid air and pus ; Dr Leake purulent fluid. The intestines adhered to the peritoneum ; and all the intestinal canal, especially the small intestines on the left side, were a little inflamed. The intestines of all those who died here at this time, had a similar appearance. Jeussieu, in the Mem. of the Acad. des Scien. for the year 1746, Peautau, Hulme in six dissections, and Leake in many, observed this. The omentum was a little inflamed ; but no suppuration appeared in it. Dr Hulme says, that the intestines and omentum were inflamed and mortified ; Dr Leake, that the omentum was not only suppurated, but often consumed. Nothing like this appeared in the others opened here, except a slight inflammation, especially on that side next the intestines. There was found more fluid in the pericardium than ought naturally to have been ; but no symptom seemed to arise from this, and the pulse never intermitted.

Having settled the facts, let us now proceed to consider the proximate cause, about which there have been many various opinions ; but they may be all reduced to seven ; stoppage of the lochia ; inflammation

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tion of the uterus ; tranſlation of milk ; inflammation of the inteſtines and omentum ; ſuppuration of the omentum, and purulent matter in the abdomen ; infection ; and a ſtate of the air favouring the production of an epidemic diſeaſe.

Hippocrates, and moſt authors, have attributed the puerperal fever to a ſuppreſſion of the lochia, as they obſerved that evacuation generally diminished or ſtopped before, or during this fever. This opinion was the more natural, as they thought that that evacuation was acrid. To this opinion, it may be objected, 1. That the lochia are not acrid, but pure blood, ſuch as circulates through the body, and runs out after the ſeparation of the placenta, whoſe abſorbing veſſels convey chyle or blood from the uterus. There is no proof of acrimony ; and, although it exiſted, it could not excite fever ſo ſoon, or prove ſo mortal. 2. The lochia are often diminished, when no fever ſucceeds. 3. The lochia often continue for two or three days after the fever has begun, as in Reid. In all the patients in the lying-in-ward, the lochia were little altered in quantity. 4. Myrtle's fever appeared on the 12th day, when the lochia muſt have contained

contained but little blood ; at least, none acrid.

Most authors have attributed this disease to an inflammation of the uterus ; and no wonder, as, in both our patients, pains were felt about it, and down the thighs. It was natural to think, that the fever arose from the part which seemed most affected. But strong objections arise against this opinion. 1. This disease and the Hysteritis differ in their symptoms, degree of danger, and cure. The pain in the hysteritis is about the uterus and thighs only ; but here it was about the stomach and intestines. In the former, the belly is bound ; in the latter, loose. The former is less dangerous, and cured by bleeding and fomentations, by which the latter is not. 2. When it proved mortal, a gangrene would generally happen, and be discovered, which is not the case. 3. No inflammation of the uterus was found, on inspection, by us, or seldom by any other person.

The Baron Van Swieten attributed it to a translocation of the milk. But, 1. The milk fever appears on the 3d or 4th day ; but this fever, from the 2d to the 12th day after delivery. 2. If this was the cause,

cause, the symptoms would be milder. 3. It would be often attended with plethora, which is seldom the case. 4. Wet-nurses would be subject to it. 5. Many women, who have had little or no milk, have escaped; and many, who have had milk in sufficient quantity, have been seized with this fever.

The most recent opinion is, that it arises from an inflammation of the intestines and omentum. This Dr Hulme published as his discovery, although Dr Leake afterwards claimed it, as first mentioned by him. But Peautau, in the *Melange de Chirurgie*, described, in the year 1750, those appearances, in a fever that attacked lying-in-women between the 5th and 15th day after delivery; in which, dissections showed the omentum thickened, suppurated in several parts, and fixed to the intestines; the intestines inflamed, and adhering to one another; and the uterus swelled, inflamed, and often gangrened. Jeuffieu may, perhaps, have a prior right, who described the intestines inflamed, *Acad. Scien.* for the year 1746. But, notwithstanding these claims, it seems not owing to an inflammation of the intestines and omentum.

mentum. Because, 1. It must have been, in that case, attended with more pain and vomiting than our patients had. 2. In inflammation of the intestines, the pulse is always weak. But, I have more than once met with a strong pulse in a puerperal fever. 3. The intestines would have often been found mortified, as in inflammation of these parts. But in none here was there such an appearance. 4. What inflammation we saw, or was found in the others who died here, was not sufficient to produce such mortal symptoms. 5. Bleeding would be the chief remedy, which it is not, if this was the cause. 6. An inflammation cannot be the necessary consequence, according to Dr Hulme, of the pressure by the foetus for so long a time; as, in that case, the pregnant would be equally subject to this disease; against which cause the author of Nature has certainly made ample provision. This inflammation, mistaken for the cause, seems to be the effect only of their situation and fever. The vessels of these parts must always be more full after delivery, as the blood will rush into them after the compression from the foetus is taken off. Besides, the irritation
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of acrid matter in the abdomen, and acrid bile in the intestines, must inflame those parts.

Dr Leake, besides inflammation, has supposed the putrescency of a purulent fluid, from a suppuration of the omentum, which putrid fluid being absorbed, in his opinion, produces a purulent fever, and increases the acrimony of the bile. But, 1. No suppuration of the omentum was discovered in Reid, or in the others opened here. 2. The omentum cannot inflame and suppurate in one day after delivery; yet women are seized on the 2d. 3. If absorbed pus were the cause, the symptoms would be very different, and the disease slower in its progress, as in the purulent hectic from the phthisis pulmonalis, empyema, &c. When such fluid is collected, it must, however, add to the severity of the symptoms.

It has been thought to arise from infection. I shall state the arguments that occur to me on both sides. Those against it are, 1. When this fever prevails, those delivered in their own houses, who are not exposed to infection, are found subjected to this disease. But none in private houses were, in Edinburgh, at that time, seized with

with it ; and nurses may always be supposed to carry it from one house to another.

2. Distress and anxiety of mind, alone, are found to occasion it. Other women delivered, and nurses, though in the same ward, are often not infected, which ought generally to happen. The person who succeeded to Reid's bed in the lying-in-ward was not infected. 4. Patients, who assist as nurses, are not infected before, but after delivery. 5. The time from delivery to the commencement of the fever, is often too short for the effects of contagion to take place, as the fever sometimes appears the 2d day.

The arguments in favour of infection are, 1. This fever has been long observed to prevail, in a greater degree, and to be more dangerous, in hospitals, than in private houses. In 1746, at Paris none recovered. In the hospitals at London, during January and February 1770, it was epidemic, and fatal to many. It is more fatal in small hospitals than in large. In the first hospital at Manchester, which was small, there died one of eighteen; but, in the present, which is larger, one only died out of twenty-four. 2. It has been remarked,
that

that women delivered among wounded men do not recover. 3. From the excellent regulations and method observed by Dr Young, in the lying-in-ward, very few deaths have happened since its institution. Yet five died, in a short space, at this time. The midwife, and one of the nurses, were seized with fevers, of a different kind indeed, as in these two there was no vomiting or purging ; but still their disease was suspected to arise from infection. Reid had been in the house for three weeks, and lay in the room with one who died. 4. Dr Young, after these deaths, thought it prudent to purify the wards, by ventilation, cleaning, white-washing, &c. after which this fever totally disappeared, and has never since that time occurred there.

The last opinion, in favour of infection, appears to me to be the strongest. Is it of the erysipelatous nature, as Peautau thought? This appears probable, as, 1. this fever has much the appearance of the erysipelas, from the sensation of internal heat, from the quickness of its course, &c. 2. Purgatives and camphire are found successful in it, as in the erysipelas. 3. Reid had small external tumors, which

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seemed

seemed to have some resemblance to the erysipelas, and were perhaps partial attempts of nature to produce it 4. The erysipelas, at that time, was epidemic in the Infirmary; and, beyond all doubt, infectious, though it was never before thought to be so. For the patients, in the beds next to those who had the erysipelas, and the nurses attending them, were infected; and the surgeons of the hospital found, that an erysipelas supervened on every incision.

That there may be some preceding epidemic state of the air, favourable to the production of this disease, is not improbable, as, 1. it is thought to happen at certain periods. It is a vulgar observation, that it occurs once in seven years. 2. At certain times it rages equally in hospitals and private houses. What that state of the air is, cannot easily be ascertained. Dr Leake thinks that moisture is favourable to its production. But our season was dry; and it appeared after a long frost. It seems peculiar to certain situations, as Mr Brydon says, that none die in Sicily; but many in the hills of Switzerland.

There are many circumstances in the puerperal state, that render the body, at that time, more susceptible of miasmata or infection.

tion. 1. Women are, in such a situation, peculiarly anxious. Hence, the unmarried are most subject to this fever. 2. The nervous system is in an irritable state. Some parts have been much stretched, some much compressed, during the preceding months. The pain and irritation at delivery are so great, that it is often attended with delirium. Hence a spasmodic state is easily induced. 3. The body must be in a strongly absorbing state after delivery, from the loss of blood, and the removal of pressure. 4. The fluids are in a more acrid state than usual. The belly has been more bound, and therefore more acrid particles are absorbed from the primae viae. The constant quickness of pulse must have generated a greater quantity of these acrid particles in the blood. All of those formed by the foetus, as it performs no excretions, must return to the mother. 5. The bile becomes more acrid from the acrimony of the fluids, and more plentiful, from the blood, after delivery, rushing into the vessels of the intestines. Hence the gall-bladder is always found full of bile. To its redundancy and acrimony, are probably owing nausea, bilious vomiting, pains in
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the stomach and intestines, diarrhoea, and inflammation of those parts. 6. The milk fever, which supervenes on the 3d or 4th day, must, in such a state of the body, excite a more dangerous fever. 7. The purulent putrid matter found in the abdomen helps, certainly, to bring on a fever, which has much of the putrid appearance, as the pulse is so low in general, and accompanied with such weakness, so much bile, such wildness in the countenance, &c. From the suppuration of the omentum and intestines, this putrid fluid does not arise, as it was seen in our patients, where there was no suppuration, but from a stagnation of fluids in these parts during the last weeks of pregnancy, by which there is more lymph, and perhaps of greater viscosity, secreted, while absorption is diminished. The coagulable particles found in it show its origin, and that it neither arises from suppuration, nor corruption of the viscera. It is from this lymph that the preternatural coats of the uterus and liver are produced; and from this pus will be formed, and afterwards, during the fever, putrid matter. From these reasons, a slighter cause in the air, or less contagion, must
more

more powerfully affect women at this, than at any other time.

In the cure, authors, who have treated of this fever, are of opposite opinions.

1. As to bleeding, they differ widely ; and each draws arguments from his own theory. Those who make inflammation of the uterus and intestines the cause of the disease, as Dr Hulme and Dr Leake, advise this operation, as rendering the circulation through the vessels easier, diminishing the secretion of bile, obviating the plethoric state in those who do not give suck, and as being the only cure for inflammation, which must precede suppuration. Those, again, who accuse putrescency, or putrid bile, as Dr White, are against bleeding ; and say, that it diminishes the lochia, sinks the pulse, which is always weak, and forwards putrescency. As practitioners are of such different opinions, we may conclude, that bleeding is sometimes good, sometimes bad, according to the state of the strength of the body, and of the pulse ; that it never is a cure for the disease, but sometimes, though seldom, is necessary to remove a plethora. A young Lady, 26 years of age, of an inflammatory

inflammatory habit, and not bled during pregnancy, next night after delivery of her first child, was affected with feverish symptoms, which increased, though she sweated well, and discharged plentifully. On the 5th, her pulse was strong; and unc. ix. of blood were taken from her, which was fizy. On the 6th, her skin was hot and dry; but the lochia went on well. At 4 P. M. she was seized with a violent feverish fit, and felt, internally, an uneasy burning heat. Her pulse, after this, was 140, and weak. She died that night. In none of our patients was the pulse strong; I therefore did not bleed. In those bled in the lying-in-ward, it was observed, that the pulse sunk afterwards, though the blood appeared fizy.

2. Vomits, especially of tartar emetic, are recommended, where there is much bile. When that is the case, it may be proper to assist Nature. When it is not, I see no good purpose they can serve. It was not from any acrid matter in the stomach that Myrtle had such vomiting. Reid had it not in the beginning; and that symptom in Myrtle had already ceased; so they got no vomits. If the vomiting is severe, Dr White recommends

recommends colomba. The saline draughts, in an effervescent state, may be used.

3. Dr Denman first proposed to cure this disease by laxatives and clysters. He recommended *ss. cathart. amar. ol. ricin. tart. emet. gr. 1-4th* given frequently, to purge. Dr Hulme confirmed their use, as necessary to carry off the compressing faeces, to abate the inflammation, and to relieve the head-ach, as the diarrhoea points them out, and as they do not stop the lochia. Those of an opposite opinion will say, that purgatives are not good in putrid fevers, and that the diarrhoea is symptomatic only, and does not relieve. But, as laxatives are recommended as the only effectual cure, we pursued that method with *sal. cathart. amar.* given to both patients every day, in such doses as to keep the belly loose. The salts had no effect on Reid the two first days, and I was obliged to order a clyster on the second, which operated twice. They had a gentle effect on the third and fourth, and the looseness supervened on the fifth day of the fever in which she died. Here they had no success. Myrtle got three doses of *sal. cathart. amar. unc. ss.* which operated well, and she recovered. So that, from
these

these two cases, it cannot yet be determined, whether purgatives are useful or not. It is observed, that, in this disease, the intestines are very irritable, as acids and saline julaps purge them. The contrary appeared in Reid.

4. Opium was first used after delivery by Chamberlane, and first published by Deventer. Opiates are recommended by all authors, to diminish the irritable state of the nerves, to give sleep, and produce moisture. But their good effects may be doubted, as Reid got them every night at bed-time without any advantage ; and they did not seem to contribute to Myrtle's recovery. In both inflammatory and putrid cases, they must be hurtful.

5. Diaphoretics and gentle sudorifics are recommended. Dr Leake proposes tart. emet. gr. 1-3d, along with an opiate, to be given often ; but this diaphoretic has been less used of late in this fever.

6. Peautau found camphire successful, when given, at first, to gr. xv. and smaller doses, often afterwards repeated. We gave gr. x. of it to Myrtle after she relapsed, when the P. was 150, and repeated it every 8th hour. After the two first
doses,

doses she fell into a sweat, and her pulse next day was 100. After this she recovered.

7. Dr Hulme recommends blistering. Dr Leake, on the contrary, says that it is hurtful, as it inflames the tender uterus, and increases putrefaction. Blisters were tried in the lying-in-ward. They relieved the local pains; but were of no use in the cure of the fever.

8. Dr Gilchrist recommended the warm bath, as he imagined that the disease was owing to an inflammation of the uterus. Dr Leake says that it does not answer. We tried it with Reid, and she was in the semicupium for a quarter of an hour. After it, she slept four hours, calmly, which was a good effect; but it produced no moisture of her skin. It was applied, perhaps, too late, as she died next day.

What effect will bark have? It was tried, in clysters, in the lying-in-ward; but without success. Wine was found likewise of no use.

From the above cases, and from all that has been yet wrote on this subject, we may, with great truth, conclude, that we know little of the nature, and still less of

the cure, of the puerperal fever ; and that our chief aim should be to prevent it, which may probably be done by a proper ventilation of the rooms, by not allowing the curtains to be shut, by discharging all fire, and load of bed-cloths, by giving cool drink, by shunning all animal food, unless in nervous habits, and by avoiding, after delivery, all strait binding over the belly.

S E C T V.

Morbilli.

The measles were epidemic in Edinburgh in Spring 1778 ; and though, in general, they were of a mild nature, yet I had, in the clinical ward, one mortal case, which, from the symptoms, inefficacy of the remedies, and dissection, affords much instruction. Till lately the cure of this disease was not understood. I was puzzled 26 years ago, what to do in the most dangerous circumstances of this disease, so little had it then been attended to by physicians. In the cure, it is yet capable of some improvement.

February

February 27. 1778. Elizabeth Craig, 24, of a habit rather full, and a wet nurse, exposed herself to the infection of the measles, on the 14th of February. She was seized on the 21st, the seventh or eighth day after infection. I had before, in general, traced its appearance to the sixth day from the infection; and, on that day, the symptoms were first observed in the inoculated. But they probably vary a day or two. In the variolae they are seized, generally, from the 7th to the 11th; so the fermentative process, by which the fluids are assimilated to the morbillous state, proceeds a little faster here than in the variolae.

She had complained, during the first stage or primary fever, of “alternate hot and cold fits; pain of her back and legs; headach; pain of her stomach, and vomiting; severe cough, mostly dry, sometimes attended with a little viscid expectoration; great secretion of tears; swelling of face; bad taste of her mouth; frequent sneezing; much thirst, and loss of appetite.”

What the effect of this stage is, whether critical, salutary, and to be encouraged; or whether assimilative, hurtful, and to be checked,

checked, is a question that is not intirely speculative. Many arguments may be adduced on both sides. But certainly the latter opinion, as introduced by inoculators, has succeeded better than the former, in the treatment of the variolae. It is not yet, however, ascertained by experiment, whether extreme cold agrees with the measles, as with the variolae. Whatever checks the feverish state in the latter, as keeping them much out of bed, exposing them to the coldest air, and in the worst weather, and giving them cold drink, has been found most successful. This treatment diminishes the number of pustles, and promotes, instead of retarding, the eruption. But, whether it will do the same good in this disease, which is rather more inflammatory, and so liable to produce a topical affection of the lungs, may be doubted. Besides, in the variolae, when there are few pustles, there is less suppuration, and less absorption; but neither take place here. Experiment alone can decide; and we were as much surprised at first, when cold air was introduced in the treatment of the variolae, as at present, when proposed for the morbilli.

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The measles are similar to the small-pox in many circumstances. Both have the same origin ; both exanthematous ; both regular in their stadia ; both of an inflammatory nature ; both disagree with the hot method, and agree with the antiphlogistic. The primary fever, in the morbilli, shows stronger marks of an inflammatory disposition than the same stage of the variolae, more cough, more heat, and eyes oftener inflamed. These symptoms point out clearly the antiphlogistic method of cure. 1. Bleeding makes the most important article of that treatment. It is surprising, that no author recommends it in the first stage. Sydenham, who considered this disease as highly inflammatory, never mentions it ; not even to prevent the peripneumony ; yet it is, at least, as necessary as in the variolae. It is never ordered by physicians, unless some severe symptom appears. But this case will convince us, that it generally ought to be, as a means of preventing or alleviating bad symptoms. 2. Keeping the belly open, in this stage, and thro' the whole disease, which we endeavoured to do by clysters, seems equally useful. Gentle laxatives appear

appear more necessary here than in the primary fever of the variolae, as they promote a determination from the lungs, and carry off some morbillous matter. 3. During the whole disease, after she came into the hospital, the air of the room was ordered to be cool; and no fire was allowed; a little of the window was kept open. The drink was cold, and the diet low.

“ On the 6th, the eruption appeared on the face. On the 7th, she came into the clinical ward. At noon, her P. was 116; at night, 100. The eruption was now seen over all her body, but especially on the face. She sleeps ill; has some difficulty of breathing; no moisture on her skin; her belly is bound; and her urine is less in quantity, and high coloured. 8th, P. 108 in the forenoon, and in the evening 90, and of natural strength. More eruption appears on her arms. Cough and headach easier; but has a little pain in her breast. Skin moist. Drought less. Her milk is disappearing.” This is the stadium of eruption.

To observe the time of eruption, is of moment in the prognosis. Diemerbroek has remarked, that the disease is always milder

milder, when the eruption happens on the 3d day, than when on the 5th. This observation is just opposite to what has been made in the variolae, and is corroborated by the present case, where the eruption happened on the 6th, and it was mortal ; and, by another patient formerly in the clinical ward, where it happened on the 5th, and the disease was attended with much danger. The eruption is seen first, and in greatest quantity, on the face. The parts which perspire most, as the groin, ham, glans, &c. seem to have least of it. I never observed any on the tongue or palate.

In our patient, the vomiting and cough abated on the appearance of the eruption ; but I am not sure with regard to the state of the fever at that time, as on the 7th day, when she came in, the P. was 116. In the favourable, the fever, and other symptoms, diminish ; in the unfavourable, they always increase.

On the 1st and 2d day of this stage, no moisture appeared on the skin ; but a little on the 3d. A moist skin is always a good sign, as it shows general relaxation, and frees the internal parts. Here, as in
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the small-pox, much goes off by the cutaneous excretion; and in both diseases there is a peculiar smell. A purging, along with the sweat, is favourable, as it carries off part of the morbillous matter; but here the belly was bound.

The urine was in small quantity. I have often seen a total suppression of urine, not from any fault in the bladder, but of the kidneys.

Why is there no suppuration here, as in the variolae? The only answer is, that such is the nature of the disease. Perhaps the acrid matter lies here above the *membrana adiposa*, where, in the small-pox, it seems lodged; perhaps even above the cutis, as the cuticle scales off, and is not sufficient to raise there such a degree of inflammation as to burst the perspiratory vessels, as the erysipelas and cantharides do. Hence, it is surprising, that these two should ever have been treated as one disease by authors.

Our attendance on this patient began only on the 2d day of this stage. Though bleeding is forbid by authors during the eruptive stage, yet I have long been convinced of the impropriety of this rule. All
eruptions

eruptions go on better with a moderate than with too strong a pulse. I have often bled in the beginning of this stage, and always found the eruption increased, not diminished, by it. If any signs of plethora had been discovered, bleeding would not, at present, have been omitted. But there appeared no pressing indication; and an attention to preserve her milk, about which the patient was anxious, had some small influence. I must own, such temporising, and often frivolous reasons, prevail too much in medicine.

“ The third stadium, or that of exaref-
cence, which generally begins on the 6th,
did not happen until the 9th day. The
pulse in the morning was 96, and soft.
Eruption on the arms retiring; but rather
more plentiful on the face. The cough
was increased; and some pain was felt in
the breast. *Fiat venæsect. ad unc. viii.*
Blood in a natural state. *℞ Rad. alth.*
unc. i. coq. in aq. font. lib. iii. ad lib. ii.
et cola. cap. unc. iv. 3tia quaq. hor. Hor.
7ma, P.M. pulse 76. 10th, hor. 10ma, A.M.
P. 72, and soft; but at night, 92. Cough
easier; pain of the breast gone; eruption
still appears on the face, but not on the

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body.

body. 11th, P. 100, at night 92. Nausea, oppression about the region of the stomach, severe headach, and her left eye inflamed and painful. Applicent. hirudines No. iii. temp. Injiciat. clyfma. 12th, Pulse the same. Cough and headach. Applic. emp. episp. terg. 13th, P. 100 in the morning, 92 at night, and soft. Blister discharges well. Inflammation of the eye, headach, and cough easier. Oppression and anxiety of stomach still continue. 14th, P. 104, and soft. Slept ill, from constant tickling cough. Hor. 3tia P. M. breathing laborious; great anxiety; cheeks red; P. 132, and soft. She was bled twice that afternoon. Blood has a thick fazy coat. Breathing relieved, for a little, by each bleeding. She got a solution of tart. emet. After the second dose, she vomited and purged thrice. Her breathing became easier, the expectoration was in considerable quantity, and she slept an hour. Applic. empl. episp. later. 15th, Hor. 4ta, A. M. breathing more difficult. Rep. venaelect. ad unc. vii. Blood in a natural state. Breathing and expectoration easier. Inspiret vaporem aquae calidae. Hor. 12ma, P. 160, and weak. The vapour was continued.

tinued for half an hour, seemed to relieve her breathing a little, and a general moisture appeared, which still continues. Breathing at present laborious, and somewhat convulsive. Expectoration plentiful, thick, and yellow. Urine passed insensibly. Hands tremble much. Eyes inflamed. Face and cheeks pale. Eruption still seen on the face. Tongue white and clammy. Thirst considerable. Applic. cucurbit. sine ferro statim later. et postea fofus later. R. Pulv. Jacob. gr. xii. conf. ros. q. s. f. bol. cap. statim. Injiciat. clysm. ex aq. tepid. unc. viii. Applicent. sinapism. pedibus. Hor. 7ma, P. M. pulse 150, and weak. Shoulders much raised in respiration. Expectoration difficult and diminished. Lips pale and dry. No pain. Died at 10 P. M.

When opened, the trachea was found filled with matter of a purulent appearance; but no preternatural membrane, or ulceration, were seen. The internal membrane of the trachea was much inflamed; but no eruption or pustules were on it; nor was it preternaturally thickened. On cutting into the substance of the right lobe of the lungs, a considerable quantity of blood flowed from the incised vessels and cellular membranes;
and

and some of the smaller ramifications of the bronchia emitted the same purulent matter before mentioned. On cutting the left lobe, the blood-vessels were much less filled with blood; but the smallest visible ramifications of the bronchia seemed every where filled with purulent matter. The lungs had no adhesions, and externally were of a natural colour. About two or three ounces of water were found in the pericardium. Abdominal viscera natural.

From this case, the following reflections arise :

1. In the third stage, many uncommon and unfavourable symptoms appeared. It did not begin till the 9th day; whereas it usually begins on the 6th. I suspect the latter the exarefcence, as well as the eruption, so much the worse. The latter happening late, must make the former so too. The pustules continued longer on the face than on the body and arms, which is not common. The belly was always bound; but, to have enabled us to form a favourable prognostic, it should have been open. The skin was always dry, whereas it should have been moist. A constant severe tickling cough, and no sleep. Severe headach, and inflamed eyes.

eyes. The pulse quickened on the 2d night of this stage, though she had been bled the day before. All these portended danger.

2. The symptoms in the third stage appeared very similar to those of the peripneumony, as dull pain in the breast, difficult breathing, severe cough, thick and yellow expectoration, hoarseness, cheeks flushed, eyes inflamed, soft pulse, and fizy blood. Indeed, it resembles a peripneumony so much, that there can be no wonder that authors make no difference between these two morbid states, and consider the measles, when ending fatally, as terminating in a peripneumony. Still, however, they seem to be different. In all the mortal peripneumonies which have occurred to me, the blood had the fizy crust to the last; but the blood taken from this patient, towards the latter end of the disease, had it not. On dissection, no inflammation or hard congestion was discovered in the substance of the lungs of our patient, which is always found in mortal peripneumonies.

3. Tho' the symptoms seemed to point out a topical pulmonary affection as the cause of her death, yet dissection does not warrant this opinion. What were discovered, viz. the
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inflammation of the internal membrane of the trachea ; plethoric state of the pulmonary vessels ; purulent matter in the bronchia, which must have been formed from mucus collected in them, as there was no ulceration ; hydrops pericardii, seem not to have been the cause of her death, but rather the effects of the disease. The collection of purulent matter, no doubt, aggravated the symptoms ; but then the danger took place, probably, before that began. The fever appears to have been the mortal cause. This fever could hardly take its rise from cuticular absorption, as it must be small from such a dry eruption ; but from a great quantity of morbillous matter remaining in the blood, after the eruption. Perhaps the stoppage of the milk increased the plethoric state.

4. When the peripneumonick symptoms appear, bleeding is allowed to be the principal remedy. Sydenham recommends it as the only one. “ *Profecto haud paucos infantes, hoc statim symptomate enecandos, misso sanguine, eripui.*” Our patient was bled on the first day of this stage, as the cough had increased, and she had some pain in the breast. After bleeding, her pulse diminished

minished 20 pulsations in a minute, on that day, and the next, till the evening.

When the peripneumonick symptoms afterwards appeared severe, she was bled thrice. Each bleeding was attended with immediate relief; but it was of short duration. On the third bleeding, the blood was not fizy, and the pulse became weak; so we could proceed no farther in that evacuation. The dissection, too, showed, that there was no inflammation in the substance of the lungs. After this, dry cupping was applied to the breast. Hence bleeding, the principal remedy, fails when the danger is great; and it will more easily prevent it in the first stage, than alleviate it in the third.

5. As natural purging is of such use during the exarefcence, the belly was kept constantly open by repeated clysters. The tart. emet. purged her thrice. I have often given inf. tamar. with success in this stage. Ol. ricin. appears to be a more eligible remedy, as, besides being purgative, it is also pectoral. Purging, as well as bleeding, ought to be pursued in the first stage, when the fever is considerable. A young lady, of an inflammatory habit, who, at
the

the beginning of the disease, was seized with very severe symptoms, was, in the first stage, purged frequently by a dose of tart. emet. and she had no secondary fever. Purgatives, with tart. emet. may, perhaps, have as good effects, in the first stage of the morbilli, as of the variolae.

6. When the symptoms began to appear dangerous, and the breast was more affected, on the 12th a blister was applied to the back. The cough was easier after it. On the 14th, when the breathing was much affected, another was applied to the side. But, though it rose well, yet it had no lasting good effect. I doubt whether their advantages compensated their disadvantages.

7. On the 14th, when there appeared much expectoration, I ordered solut. tart. emet. unc. i. omni hor. donec vomit. excit. After the second dose, she vomited much, and purged thrice. The breathing and expectoration were easier afterwards; and she fell asleep. She got no more of the solution, as she could not bear much purging; and I was afraid lest it might stop expectoration, as purgatives do in the peripneumony. These two diseases appeared to me more allied at that time, than they

they do at present. Perhaps the vomiting might have been continued with advantage, from the quantity of purulent matter which we found in the bronchia, as that appears the only method to carry it off. She got two doses of P. Jacob. gr. xii. without any sensible effect or advantage.

8. As the vapour of warm water drawn into the lungs, is found of use in the peripneumony, it was applied. It seemed at first to relieve the breathing. A sweat appeared after it ; but that symptom might be owing to general debility. On continuing the vapour, she became faint. Some vinegar was afterwards mixed with the water ; but it was to little purpose.

9. She had a fomentation applied to her breast, to relax the inflammatory state. It brought on a general sweat, and did no good.

10. Synapisms were applied to her feet to rouse the vital motions, and to produce a determination from the breast ; but without any good effect.

This case affords many important instructions in practice : That we should attend more to evacuations in the first stage, than we do ; that cold air, cold drink, &c.

so very successful in the small-pox, were not attended, in this case, with similar success; that the symptoms of danger do not arise from the inflammation of the substance of the lungs, but from some other cause; that bleeding does not always obviate the cause, though it is necessary to diminish the symptoms; that we need not be afraid that vomiting will prove hurtful, from its increasing any inflammation of the lungs, but may rather judge that it will be of use by aiding expectoration. Many other inferences will occur from this curious case.

S E C T. VI.

*Experiments upon some Remedies used in the
Phthisis Pulmonalis.*

There is no disease more common here than pulmonary consumption; and none, especially in its second stage of ulceration, is more incurable. The number of young ladies who die, in this place, of this disease, is very great; and surpasses, in my circle, those of the other sex. Their breast is much better covered at home, than when they go abroad; and their bodies,
dies,

dies, after being heated, are not so able to bear the cold as those of men. But it is otherwise in the lower ranks. Of sixteen pulmonary cases, in my report-books, only four of them are those of women. Men of that station are more subjected to all irregularities, and every inclemency of the weather. Nor are those of middle age secure against its attacks, as is commonly observed. About the half of these patients are at least about forty years of age, some of them much beyond that period.

In a disease so general and so destructive, we ought to pay attention to every new method of cure, give it a fair trial, and from that judge of its merit. I propose here to collect some of these experiments made upon remedies lately recommended in the cure of the phthisis.

ACIDUM VITRIOLICUM.

The vitriolic acid, and elix. vitriol. acid. have been much used of late, as I am told, in the London hospitals. It is the vitriolic acid alone, in the latter medicine, that is capable of producing any effects. Du
Haen

Haen has given us some cases, in which this medicine was successful. Hence, further trials became requisite to confirm or reject its use.

EXPER. I. November 29th 1774. William M'Pherson, 30, a taylor, about six weeks before this, after exposure to cold, was seized with cough, dyspnoea, and frequent haemoptoe. Of late his expectoration has been free from blood, sometimes white, sometimes yellow, and swimming mostly upon the surface of water. He has some pain in his right side, and his legs swell in the evening. His pulse is soft, about 100, and much the same in the morning as in the evening. Sweats none. Much thirst. Appetite tolerable. As the matter here had vent, and as there was much mucus secreted by the lax glands, I thought it a favourable situation for the exhibition of this medicine. He began, therefore, on December 3d with elix. vi-triol. acid. gtt. xx. in 4 oz. of water, twice a day. He got at bed-time Pill. Thebaic. gr. viii. each night. 7th, The drops repeated four times a day. 10th, Each dose was increased to gtt. xxv. 11th, Thirst as great, pain of side the same, matter more yellow. A purging seized him last night.

12th,

12th, P. 120, purging continues. Cap. Pulv. Rhei gr. xxv. h. f. 13th, Still purging. His drops suspended, and an astringent mixture ordered. 15th, Purging gone. Repet. elix. vitr. gtt. xx. quater in die, et pil. thebaic. 21st, P. 108, hoarse. An eruption of red spots, not above the skin, appears on his hand, each morning. 23d, Looseness returned. The elix. vitr. was given up, after using it for seventeen days, without benefit. The looseness appears to be owing to it, especially, as I find no mention, after it was stopt, of any purging.

EXPER. II. February 16. 1778. John Laidlaw, 52, a waiter at the port, has laboured under pulmonary complaints for three years. Has a severe cough, with plentiful expectoration of yellow matter. His pulse is between 80 and 90; and the same at night as in the morning. Hot and cold fits. Obtuse pain of his breast. Vomits sometimes. 26th, R. Mucil. g. Arab. unc. fs. aq. font. unc. iii. spt. vitriol. ten. gtt. xxv. M. f. haust. cap. ter. in die. Cap. pil. pacif. gr. viii. h. f. March 3d, repet. haust. addend. spt. vitr. gtt. xv. 6th, A severe looseness has attacked him for three nights, which made me give up the
vitriolic

vitriolic acid. Expectoration less, but as yellow. Here again it brought on a purging, which continued for several days.

EXPER. III. Feb. 28, John Cowie, 32, a labourer, a fortnight ago, after exposure to cold while sweating, was seized with cough, dyspnoea, diarrhoea, and stitch in his right side, on which he lies easiest. Expectoration yellow. Hoarse. P. from 90 to 100, and strong. After some bleedings, where his blood was always fizy, a vomit, ol. ricini, and an astringent mixture, his looseness had disappeared for two days. March 5. R. Mucil. gum. Arab. unc. ii. fs. aq. font. unc. v. fyr. alth. unc. fs. spt. vitr. ten. gtt. c. M. cap. unc. i. 6ta quaq. hor. On the 7th, the looseness appeared again; so that the medicine was given up. He died on the 15th. The right lobe of his lungs was found entirely consumed; and there was nothing left but a large sack, which contained about seven pounds of a purulent matter, and with which the remaining bronchia communicated. The left lobe was found. In the pericardium, there were about 6 oz. of a clear fluid. A little was found in the abdomen. The upper part of the liver and diaphragm adhered together; and, when

when separated, a large abscess appeared, which contained about two pounds of a brown fluid and gelatinous matter, in which were some hydatides, and many membranes of others. There was no communication between this and the sack in the lungs, though the diaphragm only intervened. The internal surface of this cavity was in part ulcerous, in part horny, tending to an ossified substance. At the inferior edge of the liver was a tumour, of the size of the hand, quite filled with hydatides, of various sizes and shapes, the membranes of which were very thick, and so compressed, that each bore the impression of those contiguous. The internal surface of this sack was horny and white, but not osseous. The tunica vaginalis of the right testicle was dropfical.

From these three cases, two of which were perhaps rather unfavourable, no advantage was obtained by the vitriolic acid. But the first was as favourable a case as this medicine could meet with, and gives me no great opinion of its utility. Its astringency and strong antiseptic power may sometimes correct the laxity of the solids, and the purulent dissolution of the fluids.

fluids. But we find, that it strongly tends to promote purging, even though joined to the mucilage of gum Arabic, and accompanied with opiates. This is certainly a bad effect.

A L U M E N.

Monfieur Goddart recommends alum in the phthisis, to stop the purging and colliquative sweats, and correct the dissolution of the fluids.

EXPER. IV. William M'Pherson, Exp. I. got alum, gr. x. then xv. thrice a day, for six days. He was no better; and his pulse seemed quicker while he took it; so it was given up.

I should expect no greater advantage from it than from any other astringent, that is, to diminish a looseness, when there is any. It does not appear to have any powers in curing the disease.

CORTEX PERUVIANUS.

The bark has been recommended by several authors, and is at present used in this disease. But, as this is so powerful a medicine,

dicine, we ought always to remember, that, when not useful, it may not be entirely innocent.

EXPER. V. Will. M'Pherson, Exper. I. to diminish the quantity of matter expectorated, was put on a course of it on Jan. 1st. He got drach. fs. four times a day. 6th, Thirst greater; more heat in the soles of his feet; breathing more difficult. 10th, The fever during the night increased. 15th, Difficulty of breathing much worse, and sweated all night.

Thus it was tried for fifteen days; but all the symptoms were evidently worse. I have had several cases before, in private practice, some of which are to be found in the Medical Facts, of the bark not only being useless, but very hurtful, in this disease. In one case of a Lady, the paroxysm, instead of going off in the morning, as usual, retired about 8 P. M. Her disease, though with every other symptom of a phthisis, was thought to be an intermittent. She was advised, therefore, to take the bark. In a few days, the dyspnoea and cough were worse, which obliged her to give up that medicine. She died; and, when opened, many ulcers were found in the lungs. The natural

effect of the bark, which is to bind the breast, might make us suspicious of its bad effects, in a disorder where a free expectoration is so necessary. I have always observed it highly detrimental in this disease.

A M Y L U M.

As starch is classed amongst the increasants and demulcents, it was natural to try it in the phthisis.

EXPER. VI. May 16. 1770, Alexander M'Laughlan, 60, after a fever, some weeks ago, was seized with severe cough, expectoration of yellow ill-tasted matter, stitch in his right side, on which he cannot lie, and a hot fit in the evening, preceded by chilliness, and succeeded by a sweat in the night-time; P. 94, and rather weak. R. Amyl. unc. i. aq. font. lib. i. coq. ad unc. xii. dein add. Syr. alth. unc. i. cap. unc. ii. 4ta quaq. hor. He had Tussilago tea for common drink, and an opiate at bed-time. 23d, Expectoration easier, and its taste not so bad. 28th, Expectoration has lost the putrid taste. June 3d, P. 88, cough much abated, and sweats none. Sleeps well. 20th, Dismissed cured.

EXPER.

EXPER. VII. William M'Pherson, Exper. I. tried it for nine days, without much advantage.

EXPER. VIII. Feb. 9. 1778, Ephebia M'Glassan, 14, affected during a year with cough, expectoration, haemoptoe at times, and pain in her breast. When I saw her, the expectoration was white ; P. 90. She had been in the house for two weeks, and been bled, blistered, &c. and was rather easier. ℞. Amyl. unc. fs. diss. in aq. font. unc. viii. syr. alth. unc. i. M. cap. unc. i. 4ta quaq. hor. An issue was put between her shoulders. 20th, Complaints gone, and dismissed cured.

This remedy seems to have some beneficial powers in this disease. It did not succeed in Exper. VII. where much mucus was secreted from a laxity of the glands. It will be most useful when the expectoration is thin, in small quantity, and attended with much tickling in the trachea and fauces.

M E P H I T I C A I R.

This has been recommended by Dr Priestley and others ; and some cases of its
success,

success, in changing the putrid nature of the expectoration, have been published by them.

EXPER. IX. Feb. 24. 1774, Robert Dunbar, 30, has been for some months affected with phthisis, attended with much yellow and salt expectoration. March 10th, Mephitic air, generated from chalk and the vitriolic acid, was, by inspiration, drawn in, and the application continued for a quarter of an hour this night. He felt no other effect from it, but that of a sharp taste. 11th, During a severe fit of coughing this evening, the mephitic air was applied at 5 P. M.; but the coughing lasted till 8 P. M. 17th, Defluxion less yellow; much eructation follows the mephitic air. 26th, Defluxion less yellow, and in less quantity. Complaints easier; and he was dismissed at his own desire. This patient seemed to gain ground while using the mephitic air; but he was taking, at the same time, a starch mixture and opiates.

EXPER. X. March 15. John Stewart, 20, for three weeks past has been affected with cough, defluxion very yellow and salt, pain of his side, headach, vomiting,

P. 120, and weak. He got a vomit, an opiate each night at bed-time, and an issue was put in his side. 18th, Began the use of the mephitic air for a quarter of an hour each day. 25th, Matter expectorated neither so yellow, nor bad tasted. Pains in his breast and breathing better. 28th, Expecterated matter diminished much, does not sink in water, as it used to do, and less yellow. April 8. recovered his smell, which he had quite lost; says the mephitic air makes him sick. 21st, All complaints better, and dismissed on the 25th. A share of this cure may justly be attributed to the mephitic air.

EXPER. XI. William M'Pherson, Exp. I. after the first application of mephitic air, felt himself sick and faint. The 2d day, about two hours after using it, he was seized with dyspnoea, giddiness, and fainting. Pulse, before using it, was 112; after it, 108. Though I could not say that these effects certainly arose from the application, as they should have appeared at the time, and not two hours after, yet I deemed it prudent to desist.

EXPER. XII. John Laidlaw, Exper. II. tried the mephitic air for a few days. He felt

felt the vapour warm in his breast ; and it had a sour taste. But he seemed not relieved by it, though he continued it for about twelve days.

From these experiments, mephitic air appears sometimes to be of use. It may act, 1. Directly on the purulent matter, and mitigate its acrid nature. This the two first experiments, and those of Dr Priestley, show. 2. It may be absorbed into the vascular system, and correct the effects of pus after it is absorbed. The 2d case gives us some reason to think so. 3. It may affect the nerves and vessels of the part, and of the whole system, as it appears an excellent tonic medicine. Many of the German waters, and especially those of Seltzer, are much used in consumptions ; and they owe almost all their powers to mephitic air. But more experiments are necessary, to fix its effects in this disease, and the degree of trust it deserves.

V A P O U R O F T H U S.

Mead recommends the vapour of thus, of styrax, and of succinum thrown on live coals, or balsam of Tolu smoaked like tobacco,

bacco, to correct the sharp defluxion. Others prefer benzoin. But benzoin and succinum, from the quantity of salt which they contain, seem to be too acrid. I, therefore, preferred Thus.

EXPER. XIII. Alexander M'Lauchlan, Exp. VI. had the vapour of frankincense applied for several days, while he was taking the starch. It did not seem to do any good, and I thought he coughed much after its application

EXPER. XIV. John Laidlaw, Exp. II. after trying it, had severe fits of coughing; so that, after the second time, he would not use it any longer.

From these, and other trials made with this remedy, I have no opinion of it, especially when we consider, that it is, in effect, the application of stimulating essential volatile oils, and acid volatile salts, to an irritable and diseased part. I found the effects of these vapours much gentler, when the gum was thrown on heated brick, than on coals, as the vapour of the coal itself is offensive. It would probably be still better to fumigate the room, and to use no stronger, or nearer application of it. Perhaps, these gums may emit some me-
phitic

phitic air, to which they may owe their salutary qualities, if they ever possess any.

Upon the whole, most of these medicines have been found to exasperate, rather than mitigate the symptoms. Starch and mephitic air are the only remedies which seem to have alleviated their severity. More cannot be done ; for, while matter continues pent up in the lungs, it must produce its effects, and at last destroy. If the ulcer is open, it will, generally, of itself, and without any assistance, heal.

S E C T. VII.

Melaene.

There are few disputes between the ancients and moderns, in the practical, but many in the theoretical branch of medicine. The former were not used to dissection ; knew not the principles of chemistry ; and seldom inspected morbid bodies. Hence they are not to be trusted in the pathology of diseases. The present is a strong proof of this observation ; and there has been much difference of opinion betwixt them, with regard to its seat and origin.

origin. It is the *νετος μελαινη*, or Morbus Niger of Hippocrates, Seceffus Cruentus of Hoffman, and the Melaene of Sauvages. It is often a symptomatic disease only; and arises from obstruction of the liver, spleen, stomach, intestines, &c. When it thus appears at the latter end of a disorder, it is justly reckoned very fatal. But it is sometimes idiopathic and original; and then I have found it not very dangerous. As I have met with three cases of this latter sort, and as this state of the disease is very rare, I think them well worth our attention, especially as I could not find in authors, any practical observations that were of much assistance to me, in the treatment of these cases.

HISTORY I. December 24. 1776. George Blyth, 27, a taylor, about twelve years ago, had an ague, attended with a swelling of the abdomen, which was painful on pressure, and after eating. Since that time, each Spring and Autumn he has complained of pains in the region of the liver, in the shoulders, ancles, and wrists. He had in June the last attack, during which he felt a strong desire for acids and bitters. December 23. without any
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known

known cause, first perceived his stools black and loose; and, after the first and second, was very faint. When he came into the clinical ward, he had passed about two pound of liquid matter, black, shining, very foetid, and about the consistence of honey. Some scybala were mixed with it. He had not much pain, only a little griping, which he attributed to a dose of Anderson's pills he had taken the day before; but which probably arose from the disease, as he had afterwards the same symptom. Complained of much weakness. No hardness or obstruction could be discovered in the liver, spleen, or any part of the abdomen, when examined or pressed. Headach. Tongue moist. Bad taste in his mouth. P. 104, and soft. 3d, Got a vomit. 4th, P. 130, Vomit operated well; and stomach foul, but the contents not acid. Thirst. Many scybala, with black stools. Headach, but no pain in the abdomen. Got P. Rhei scrup. i. merc. dulc. gr. iii. 5th, P. 108, Seven loose stools, of the same black matter, as already described. Cap. elix. vitr. acid. gtt. xx. in aq. unc. iv. ter in die. 6th, P. 136, and strong. Violent headach.

Stools,

Stools, during the night, of a black colour; one, this morning, natural. The acid is agreeable, and produces no pain of his belly. Fiat venæsect. ad unc. ix. Hor. 8va, P. M. P. 108. 7th, Not bled till this morning. Blood has a natural appearance. P. 106, and rather strong. Two black, and two yellow stools. Great debility follows the former, but not the latter. Sweated much last night, and thought himself easier. 8th, P. 96, and of natural strength. Urine pale; but has a little white sediment. Stools of a natural colour, but still loose. Headach easier. Tongue white and dry; but thirst abated. Some slight pains of his belly. Debility diminished. 9th, P. 96, moisture on his skin. No pains of his belly. Continued to recover; and on the 17th, P. 76; but belly still loose. 21st, Gave him the bark. 24th, Dismissed cured.

HIST. II. February 7. 1778. Jean Cubie, 25, unmarried, regular as to the appearance of the menses, and affected with frequent vomiting and loss of appetite during the winter, was seized, on January 30th, with violent vomiting of tough viscid, and purging of black, tar-like

like matter, both which continued that night and next day, attended with severe gripes. February 3d, vomiting and purging ceased; but her stools still black, with nausea, and pain of belly. 8th, Vomiting and purging returned, and continued all day. The first stool was black; but afterwards she passed, with much pain, florid blood, without any faeces. Great weakness, and frequent fainting fits, in one of which she continued ten minutes. 9th day of her disease, on which she came into the clinical ward, her vomiting was much abated, and blood in less quantity. No schirrosity or hardness to be felt in the abdomen. Great weakness. Skin hot. Mouth dry and clammy. P. 80, and of natural strength. No appetite. Sweated some after vomiting. Attributes her disease to fatigue. *Fiat venaesect. ad unc. vii. R. Spt. vitr. ten. drach. ii. aq. font. unc. ii. fyr. e ros. ficc. drach. ii. M. f. Julap. Cap. cochl. parv. ex scyath. aq. 4ta quaq. hor. Cap. cras mane, inf. tamar. unc. ii. unaq. hor. donec alvus soluta sit.* 10th, P. 78, and rather weak. Blood of a loose texture, and not much serum. Stools during the night, thin; and passed with much pain, not foetid,

foetid, full of mucus, and mixed with a little blood. The vitriolic julap raises no gripes. The phytic vomited her a little, purged her twice, and griped her. 11th, P. 74, and of natural strength. Slept well. No complaint, but a little pain in the stomach, and weakness. 12th, P. 64, pain in breast and belly. Had this night a black stool, with some blood in it. 14th, P. 64, urine turbid, with some sediment. 15th, Belly costive. R. Ol. ricin. drach. vi. fpt. vin. ten. drach. ii. M. cap. cras mane. Dismissed cured.

HIST. III. April 14. James Leslie, 42, a labourer, subject formerly to intermittents, about a fortnight ago, after exposure to cold in the night-time, was affected with pain and weakness in the lower extremities, headach, and loss of appetite. These symptoms increased during the succeeding days; and he was then attacked with nausea and vomiting. For a week past, had been much affected with pains of the stomach and belly. Hot fits, without any preceding coldness. The headach and vomiting, especially after food, continue. The pains of his legs are gone. Strength much impaired. Sleeps ill, and sweats during

during the night, from pain. Belly coſ-
 tive for three days. Tongue moiſt, and
 white. Urine at firſt high-coloured, and
 turbid for two days. P. 160. Got on
 the 9th and 11th a vomit, and on the 10th
 and 12th a laxative, which relieved his
 complaints ; but they have recurred again.
 15th of diſeaſe, P. 70, and of natural
 ſtrength. No vomiting or ſweating. Pains
 eaſier. Cap. ſol. tart. emet. unc. i. 4ta
 quaq. hor. 16th, P. 66, and weak. Yeſ-
 terday, at 3 P. M. before taking the ſolu-
 tion, was ſeized with a purging of black matter,
 like tar. At 5 P. M. he began the ſolu-
 tion, as ordered before this ſymptom ap-
 peared ; and half an hour after, had ano-
 ther black ſtool, and three more this mor-
 ning, after the ſecond doſe. Took a third
 doſe at 5 A. M. this day ; and at 6 he faint-
 ed, on going to ſtool. At 7 A. M. vomit-
 ed a pound of black and ſeemingly pretty
 pure blood. Complains of nauſea, weak-
 neſs, ſhiverings, cold feet, and thirſt. The
 ſolution omitted. Mucil. gum Arab. aq.
 font. aa unc. iv. ſp. vitr. ten. gtt. c. fyr.
 alth. unc. i. M. f. julap. cap. unc. i. 3tia
 quaq. hor. 17th, P. 86, about the ſame
 hour as yeſterday, vomiting, and purging
 of

of the same black bloody matter returned, with great sickness and debility. Some scybala. It lasted a quarter of an hour, with a little tenesmus. Cap. statim pulv. rhei gr. xxv. beef tea was ordered. Fiant ligaturae supra genua. Hor. 7ma, P. 120, seized with the same black vomiting, in which the crassamentum is like a firm adhesive jelly; and had one black stool, owing partly to the rhubarb. 18th, P. 106, and stronger. Restless during the night. Ligatures continued applied until 3 o'clock this morning, and taken off then, as they were uneasy. Vomited again at 9 A. M. but not so black. Utatur pediluvio ex aqua frigida statim, et repet. vesp. Hor. 7ma, P. M. P. 96. 19th, P. 96, and strong. Matter vomited not black, but severe pains before vomiting. Belly costive for two days. Fiat venaesect. ad unc. vii. Injiciatur clystma. Hor. 7ma, P. M. P. 80. 20th, P. 76, and rather strong. Blood in a natural state. Pains of belly severe during the night, but now easier. No vomiting or purging, but frequent tenesmus. Clysters had no effect. Rep. venaes. ad unc. viii. Repet. clysm. 21st, P. 78, and rather strong. Blood in a natural state. Cap. inf. tamar.

cras

cras mane. 22d, Pulse still strong. Dyspnoea. Pain amongst the short ribs of the right side, increased by full inspiration. Tongue black, but moist. Rep. venaes. ad unc. x. Injiciatur clysm. domest. 23d, P. 76, and rather strong. Blood natural, and crassamentum adheres firmly. A hard stool after the clyster. Pains easier. Rep. clysm. 24th, Headach; Pain of stomach. One black stool after the clyster. 26th, Belly pained and bound. Cap. ol. ricin. unc. i. h. f. This he got for three nights following, as it scarcely proved laxative; and still a little black matter appeared in the foeces. After this, he recovered, by degrees, having been 12 or 14 days under the black vomiting and purging.

Let us now draw some conclusions from these three remarkable cases.

1. Hippocrates, Boerhaave, B. Van Swieten, and perhaps Morgagni, thought that the atra bilis was the cause of this disease. But,
 1. The bile is often black, when there are no black stools. 2. The bile could not afford the great quantity of black matter passed by our patients. 3. Bile does not easily become putrid, as the matter was, in the first case. 4. Morgagni errs in thinking

ing that the two pounds of fluid which he found in the stomach could not, on account of its quantity, be blood; and hence in concluding it to be atra bilis. From these cases, the black stools appear evidently to be owing to blood effused from the meseraic vessels. 1. A hemorrhagy of blood by stool followed in case 2d; by both vomiting and stool in the 3d; and, in both, alternated with the black matter. 2. More debility was felt than attends a common diarrhoea. All the three had great debility and deliquium. The first patient felt a sensible difference when he passed yellow or black stools, as the latter were attended with great debility. When we add to these proofs, that this disease often follows hemorrhagy; that scorbutics are most subject to it; that the meseraic veins are found swelled and turgid after death; and that the viscera are often obstructed, there can remain no doubt from what cause the black stools arise.

2. It is difficult to settle the precise seat of the disease in our patients. As all the three complained much, during the disease, and after it was gone, of pain in the stomach, the seat may be thought to be in that

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viscus.

viscus. But, if seated there, the two first patients must have vomited blood also, as well as the last. In them, the disease was perhaps situated in the ilium; in the last, probably in the stomach, or beginning of the small guts. As black blood is often found in the spleen, Van Swieten deduces its origin from thence, by the liver, or *vas breve*. But there is no proof of a passage either way; and, at the same time, he supposes it to be *atra bilis*.

3. We find, in all the three cases, previous complaints in the intestinal canal, as loss of appetite, pains, vomiting, &c. before the disease appeared. These point out obstruction and irritation there for some time. The obstruction could not be great, as the disease was so soon cured. From this obstruction, assisted by vomiting, hemorrhagy will naturally happen, as the internal coat of the intestines is but weak.

4. Severe gripes attended; as the vessels were either ruptured, or much dilated; as blood, by stagnation, becomes acrid; as scybala are formed, which occasion pain in the dysentery; and, as spasms take place in the

the intestinal canal, of which the scybala are a proof.

5. The black matter was very foetid in the first case, but not in the two last. Blood exposed to heat and air turns black and foetid. Perhaps, if it stagnates long in the miseraic viens, as it does in those of the uterus before the menses appear, it may become so. It did not seem to have remained in the intestines very long in Case I. as in it there was most purging.

6. Great debility, and frequent fainting, attend it, as there is much blood lost, which, on the whole, might have amounted to several pounds; and as, while stagnating in the intestines, it becomes acrid and putrid, which may weaken the nervous power.

7. Though this disease is acute, and terminates soon, yet the degree of quickness in the pulse is not great, generally not above 80 or 90 beats in a minute. Hence the fever may be suspected to be mostly symptomatic. In Case II. the degree of fever kept exact proportion to the number of stools.

8. In Case I. the crisis happened on the 8th day; in the II. on the 14th day; in the III. if we count only from the appearance

ance of black matter, about the 14th day also ; if from the beginning of the previous symptoms, near double that time. The coincidence, in this uncommon disease, of the time of the crisis, with fevers in general, is singular, and gives us a high opinion of its regular nature, though in these three cases the crisis did not happen exactly on the same day. The first patient was cured by the continuation of the purging ; the second, by sweat and thick urine ; the third had no evident critical evacuation.

9. In the cure, I got only a few hints from Hippocrates and Hoffman, not, indeed, sufficient to be of great use ; so I followed my own ideas. As it is a hemorrhagic case, bleeding is necessary, if the pulse will admit of it. Hippocrates recommends it, but only when the pulse can bear it, else it must hasten death. In the first case, there was headach, and a strong pulse ; so he was bled. He was better, as his pulse was stronger after it. In the second, though bleeding was contra-indicated by weakness and fainting, yet her pulse was of natural strength ; so unc. vii. were taken from her on the 9th day. Her pulse was less quick next morning, though
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under physic. In the last, as the pulse was strong, he was bled thrice ; and the pulse became stronger after each bleeding. From these facts, bleeding seems useful in the original melaene ; nor ought the weakness of the pulse to deter us from bleeding in this disease more than in the Enteritis.

10. I think emetics are hurtful. It was reasonable to try, in the first case, an emetic, more on account of the headach, bad taste in his mouth, and black matter that might be lodged in the stomach, than on account of the vomiting. Besides, emetics are recommended by some in hemorrhagy, though I have found them hurtful. His stomach was foul ; but, as the black stools increased the pulse became quicker, it seems rather to have done hurt. The case was then new to me ; but it is our duty to rejudge our own proceedings, and profit by them. In the second case, we find an emetic given before she came in, on the 8th day ; but it produced violent vomiting, and was stopped only by an anodyne. In the third case, one-third of a gr. of tart. emet. was ordered every fourth hour, before the melaene appeared, and was taken after it began. The disease was not
owing

owing to it, as the attack commenced before the first exhibition ; but, as it had been previously ordered, he took three doses of it ; and perhaps the vomiting was increased by it ; so that I would advise all emetics to be shunned in this disease.

11. It seems reasonable to clear the intestinal canal. Hippocrates recommends purgatives ; and those of his time were certainly not gentle. Clysters are recommended by Hoffman. By cleaning the intestines, all foetid matter, and the pressure, which may prolong the hemorrhagy, will be removed. With this view, I gave the inf. tamar. in Case I. as a gentle and antiseptic laxative. A vomiting came on, whether naturally, or from it, I cannot say ; but the stools were soon of a natural colour ; and the laxative seemed to do good. In the II. I think the rhubarb and merc. dulc. were of some use. In the third, the ol. ricini and clysters were useful. Hence I conclude, that gentle laxatives are beneficial.

12. Antihemorrhagic medicines are indicated. Hoffman recommends emulsions and nitre, which are used in other hemorrhagies, and are antiphlogistic. The vitriolic
acid

acid appeared to me the best, as it checks all preternatural fermentation, is antiseptic, is a powerful sedative, and is a strong astringent. These effects entitled it to a trial. In the first case, the stools, soon after it was begun, became yellow. In the others, it was of use. I was affraid that it would have excited gripes ; but it did not. To prevent these, and that it might be given in greater quantity, it was mixed with gum Arabic ; for I find I can give double the quantity of it this way. So much does the gum cover the taste of the acid, and diminish its immediate effects on the primae viae.

13. When the effusion of blood is very great, Hoffman advises ligatures to the legs. They make the circulation slower, as they act like sedatives. But the third patient, to whom they were applied, became uneasy from the pain ; so they were removed. They did not appear to be of much use.

14. Hoffman advises the application of the cold pediluvium. It must produce general constriction, by which the small vessels of the intestines may be contracted. It was used in the last case ; and the black
matter

matter diminished after its application. But, whether we are to attribute any powerful effect to it, or not, I cannot determine from one trial.

15. I ordered exercise after the disease was over, as it promotes the circulation in the vena portarum. I thought bark might be useful to brace the intestines. I shunned opiates, as they would have shut up the matter that Nature was carrying off by diarrhoea, and would have increased the putrescency.

In the pathology, therefore, of this rare disease, we much excel the antients. In the cure, too, we have the advantage greatly, as we have more gentle cathartics, and the vitriolic acid, a valuable remedy, with which they were unacquainted.

S E C T. VIII.

Experiments upon the Rhododendron Chrysanthemum Lin.

This medicine, the Rhododendron Chrysanthemum, has been much used for the cure of the rheumatism in Siberia, warmly recommended to us from
Russia,

Russia, and a parcel of it sent to this place for trial. It seems astringent to the taste; and the infusion of it becomes black with chalibeates. It produced the following experiments.

EXPER. I. Dec. 16. 1778, Margaret Philip, 21, was seized, four months ago, with the symptoms of fever, attended by pains in her arms, shoulders, and wrists. The feverish symptoms abated after some time; but the pains continued severe. She was bled, and the blood had the fizy crust. On the 18th, her pulse was 106, and rather strong; so the bleeding was repeated. 19th, P. 106, and softer. Blood still fizy. Pain and swelling of her shoulder. R. Rhodod. chrysanth. drach. fs. aq. bullient. unc. viii. f. infus. per tres horas, et cola. Cap. cras mane. 20th, P. 82, about half an hour after the medicine was taken, she turned giddy, and continued so for an hour, after which she had a gentle sweat. Urine increased. Rep. infus. rhodod. add. gr. x. 21st, P. 82, was giddy and sick after the medicine, and has continued sweating till 12, the hour of visiting. Pains severe. R. Rhodod. drach. i. &c. cap. u. a. 22d, The medicine made her drowsy,

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but

but affected her head less than before. She sweated, and purged once to-day. \mathcal{R} . Rhodod. scrup. iv. &c. 28th, Her P. was 82 when she took the infusion; half an hour after, it was but 68. Was sick, sleepy, and sweated much. \mathcal{R} . Rhodod. drach. ii. &c. Her P. was 68 when she took the medicine. An hour after she took it, the pulse measured only 44; but the pains were not diminished; so it was given up. One dose of Dover's powder, given the next night, cured her.

EXPER. II. Jan. 16. 1779, Grisel Simpson, 20, was seized on the 11th with a rheumatic fever. She was bled four times, and put under the antiphlogistic regimen. 23d, P. 104, and soft. She got the infusion of drach. i. of the rhodod. in unc. v. of water. 24th, P. 100 before she took it. Three quarters of an hour after it was taken, her P. was 118; at 12 o'clock, P. 100. She felt no sensible effects from it. Drach. ii. of the rhodod. infused in unc. ix. of water, were ordered. 25th, The pulse continued the same for an hour after it was taken. She felt a head-ach. Rep. infus. 26th, P. before it was taken, was 112; an hour after, it was 82.

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Its exhibition still was attended only by a pain of the head. As the rheumatic symptoms were no easier, the medicine was given up. Many bleedings were afterwards necessary, to reduce the inflammatory state, and carry off the fever.

EXPER. III. Jan. 21. John Gibbons, 22, was attacked, on the 17th, with a rheumatic fever, attended with violent pains in several of his joints. He was twice bled, and put under the antiphlogistic regimen. 23d, R. Rhodod. drach i. aq. unc. v. &c. 24th, P. before taking the infusion, 96. Three quarters of an hour after, P. 86. Head giddy, belly bound, sweated none. R. Rhodod. drach. ii. aq. unc. ix. &c. 25th, Before the medicine was taken, P. 82; an hour after, 72, and the same three hours after. It produced no sensible effects. R. Rhodod. drach. iii. &c. 26th, P. before the dose 74; an hour after, 66. It produced no other effect but giddiness. He was thrice bled afterwards, to reduce the inflammatory state.

The following observations on the effects of this medicine may be drawn from the preceding experiments.

I. The

1. The dose in Siberia, we are told, is the infusion of drach. ii. I began with the fourth of this dose, and arose by degrees to the above quantity ; and once gave dr. iii. as the preceding doses had produced no sensible effects. I imagine, from the conduct with regard to the other narcotics, that we ought to increase it till we find that it produces some sensible effects. The proper and general dose appears to be drach. ii. if we are to follow this rule.

2. It affects the head with pain, giddiness, and sleep. It produces nausea, and sometimes opens the belly. It sometimes increases the urine. It sweats plentifully, when the state is not very inflammatory. But, when it is, this medicine does not sweat, but increases all the phlogistic symptoms, as it seemed to make more bleedings necessary than otherwise might have been required.

3. It appears to be one of the most powerful sedatives which we have, as in most of the trials it made the pulse so remarkably slow, and in one reduced it 38 beats. By sedatives, I mean such medicines as make the pulse slower, though not weaker. Such have not been attended to much by physicians ;
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and, in most experiments, if the pulse was not quickened, the experimenter declared they had no effect on the pulse, never suspecting that there was a numerous class of bodies, which rendered it slower, and had as powerful effects on the system as the former. This has been the cause of many false conclusions. I have attended much to this class of sedatives, have found it very extensive, and possessing, in common, many effects on the healthful and morbid body. Such medicines appear useful in a number of diseases, as they diminish the sensibility of the nervous system. From all the effects of this body, it appears to belong to the class of narcotic poisons.

4. In none of these cases do the symptoms of the acute rheumatism appear to have been mitigated by this medicine, though used in greater doses than in Siberia. In one of the cases, the disease was next day cured by pulv. Dover. The trials were fair. So that I may venture to pronounce, that, in the cure of the acute rheumatism, it is a medicine much inferior, in its effects, to several others.

S E C T. IX.

Cephalalgia.

The headach has been distinguished into two genera, cephalalgia and cephalea. A-raeteus first made this distinction, the Stah-lians adopted it, and Sauvages has continued it. But neither the length of the disease, nor the difference of the patient's sensation, seem to be good grounds of distinction. The presence or absence of fever, which they have not mentioned, was a much better foundation of distinction ; but, even in the habitual headach, there generally is a degree of fever. This distinction terminates, at last, in the symptomatic and idiopathic headach.

Headach is a symptom of most diseases. Many of these are general, as fevers, &c. Many topical, as irritation of the primae viae, from acrimony, worms, &c. ; of the uterus, from plethora, &c. It is but rarely an original disease, as four cases only of it are to be found in my report-books. Three of these are of the female sex ; so that women appear more subject to it. It is, indeed,

deed, a common symptom with them, at the approach, or after the suppression of the menses. As the remaining case of the man was mortal, I shall describe it.

January 12. 1775. William Gordon, 40, attributed his disease to cold ; but it was more probably owing to drinking strong liquors, as he had been employed for some time in recruiting. About the 1st of January, he was attacked with violent pain of his whole head, attended by dullness of hearing, which continued till he came in. His pulse was 82, and rather weak. Belly natural. Tongue white. He had a bad taste in his mouth, and had frequent nausea, which made me suspect some affection of his brain. He was twice bled, got infus. amar. cum duplic. fenn. Had blisters applied behind his ears, and to his temples used pediluvia often, tried an infusion of card. bened. as a stomachic bitter, aether, camphire ; but all without effect, as the symptoms were sometimes better, sometimes worse. He always appeared to labour under some oppression. On the 34th day of the disease, he was seized with a deliquium, fell down, had frequent startings, but no convulsions. His extremities

ties became paralytic, especially the right arm. No deglutition of solids, but could swallow fluids, though with difficulty. His pupil was not dilated, his eyes were open, and he appeared to see. P. 64, and rather weak. Answered no questions. His head was blistered. He got p. scammon. gr. x. dissolved by the mucil. g. Arab. in a mixture; and it was repeated next day, but without effect. He was tried with a mixture of ass. foetid. He had ol. succin. applied to his spine. Clysters were injected, which came off as soon as given. His pulse quickened to 112; and he died the 4th day after he was seized in this way.

This is a frequent termination of headaches, arising from compression. The pulse pointed out this as the cause; on the supposition of which, strong purgatives were ordered.

The whole vessels on the surface of his brain were uncommonly turgid; and there was an effusion of blood, about half an ounce, between the pia mater and arachnoides, near the falx, in the left hemisphere. The pia mater, and substance of the brain, above and below the place of effusion, were considerably inflamed. The substance of the brain, tunica arachnoides,
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and pia mater, firmly adhered to each other, for a considerable space, around the place of effusion. In the ventricles, about an ounce of water was collected; and a numerous cluster of hydatides adhered to each plexus choroides. Beneath the cerebellum, and around the medulla oblongata, there was a collection of near six ounces of water.

Effusions of blood and serum, as in this case, are frequent causes of cephalalgia, as appears by Morgagni's and Lieutaud's dissections. These are certainly, in general, the cause; and not the effect of headach, as has been thought by some. The length of time the disease continued could be no objection, as blood, and other fluids are longer contained in other cavities. Nor, to this opinion, can the natural appearance of the fluids be objected, as their qualities are long of being altered, when preserved from the air. But they are often spoiled, as Morgagni mentions their sharp taste. Hence most of Lieutaud's cases end in palsy, lethargy, apoplexy, epilepsy, or vesania.

Besides this, there are other causes of this disease. Ulcers, and abscesses of the brain, dura and pia mater, are frequently to be found in Lieutaud's and Morgagni's dissections.

dissections. Accretions and ossifications of the different parts of the dura mater, falx, and brain, are often discovered. An ossification of the falx does not, however, always produce headach, as I had a case of part of the falx ossified without headach ; but the person had been observed, when drunk, to be very furious. Congestions of blood in the vessels of the brain, as often discovered, must be a frequent cause, as well as effect of headach. Nervous irritation and affection will, alone, produce it, as we see from the clonus hysterical, and the headach in the beginning of fevers.

In the cure of this disease, we have little or no power over ossifications, effusions, or ulcerations, three of the causes given. In the other two, congestions, or nervous affection, we may be of some assistance. Hence we so often fail in its cure.

In congestion, we can relieve by, 1. an evacuation of blood, either general from any vein ; or topical by the lancet from the temporal artery, by leeches or cupping from the temples, and by instruments, as mentioned by Aretaeus, applied to the nose. 2. Errhines, which I have
tried

tried without much success. 3. Topical evacuation, from or near the head, by a blister, issue, or seton. 4. Purgatives. 5. Determining the fluids to other parts, by rubefacients applied to the temples, pediluvia, &c.

Nervous irritation may be diminished by, 1. a great quantity of cold water drunk every morning, as recommended by Hoffman, which will wash off all acrid particles from the stomach, while the cold strengthens, and diminishes the sensibility of the part. This remedy was tried for a considerable time, in one of the patients, but without any effect. 2. Nervous and tonic medicines, as the bark, valerian, &c. These were tried in two of my patients without success. In a third the valerian succeeded. 3. Cold water applied to the head, by immersion, or the shower-bath. 4. Cacuphae of cephalics, as lavender, rosemary, &c.

S E C T. X.

Experiments upon Sir Hans Sloan's ointment in the Albugo or Leucoma.

When the cornea has lost its pellucidity, so that vision is hurt, the disease is called
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by most of the moderns, Albugo, and by Sauvages, Leucoma. Both names are taken from its whiteness, though it is often of a very dusky colour. It appears sometimes as a single speck, while the rest of the cornea is pellucid; sometimes as a dusky cloud, covering all the cornea. This affection always arises from a previous long inflammation of the cornea, especially where astringents have been too early, or of too great strength, applied. It must be generally in the external coats, otherwise, neither the knife, nor external applications, could have any effect in curing it. As the cornea is of a lamellated structure, the fluids are, perhaps, extravasated between the lamellae, and coagulate into a coat, as on the surface of different viscera after inflammation. Perhaps, too, the fluids, in some of the smaller vessels, may remain, and be concreted.

It is very difficult to remove; and the more so the whiter it is, as that colour is the effect of a thicker and firmer coat. I have tried a variety of aperients and deobstruents; have given soap in great doses, and for a long time; have tried merc. dulc. and a solution of sublimiate; have
prescribed

prescribed the decoction of mizerion, a more powerful deobstruent than mercury; but all without advantage. I have met with no better success from external applications, fomentations of the emollient sort; the vapour of such bodies as emit volatile stimulating particles, as valerian, rosemary, &c. which are recommended by authors; attenuant saline eye-waters, as the solution of crude sal. ammoniac; and the bile of animals, which is mentioned by Hippocrates. I never had the courage to try the impalpable powder of glass, recommended by Dr Mead. The manual operation is not in practice here; and cannot, I think, take place, where there is a cloud instead of a speck. I had recourse, therefore, to Sir Hans Sloan's ointment.

EXPER. I. Dec. 2. 1776, Mary Smith, 19, subject to ophthalmia since she was seven years old, is at present affected with it. The cornea of the right eye is very opaque, so that she can see little with it; and that eye is much pained and inflamed. This affection seems to have subsisted since first attacked with ophthalmia, as she never saw well with that eye. Headach. P. 96. My first endeavour was to reduce the inflammation

inflammation by bleeding, laxatives, blisters, &c. 18th, Inflammation gone. R. Tutt. ppt. unc. fs. lap. haemat. ppt. scrup. i. aloes succotr. levig. gr. vi. Margarit. ppt. gr. ii. leviga optime simul et misce cum axung. viper. q. s. ut f. liniment. ophthalmicum. This is the receipt of Sir Hans Sloan's ointment. He thought the vipers grease a material article, as, when used alone, it appeared to him more successful than ol. olivar. To ascertain whether this is so or not, will require more experiments than have yet been made. As there is no vipers grease kept in this country, we were obliged to make use of hogs lard. When the ointment was first applied, it gave pain, and raised a degree of inflammation; and no wonder, when the inflammation was gone two days only. But, after applying leeches to the temple, she was no more troubled with it, though the eye always smarted when the ointment was applied. On the 5th day, the cornea appeared clearer. On the 22d, scarcely could the opacity be distinguished.

EXPER. II. Feb. 11. 1778, Katherine M'Kenzie, 22, has been affected with inflammation of her eyes, and dimness of sight,

fight, for six weeks. The cornea of each eye, at present, is opaque, especially that of the left eye, with which she scarcely sees any. There appears a white speck in the cornea of the left eye, opposite to the pupil, and a flighter one on the right. Both eyes are inflamed and pained from light. After the inflammation of her eyes seemed reduced, she began the liniment on the 24th. But she was attacked, at different times, with insensibility, difficulty of speech, swelling of her whole head, redness of her face, and great inflammation of her eyes, to all which she had been subject before the ointment was applied. This determination to the head, which obliged me to suspend the ointment, recurred often, notwithstanding bleeding, physic, blisters, &c.; nor did it disappear till a seton was put into her neck. After this, the ointment was continued; the dimness gradually disappeared; and, in two months and a half, when the clinical ward was shut up, she was dismissed, with both corneae in a natural state, excepting a small speck, less than the head of the smallest pin, on the left eye.

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This ointment, therefore, appears to have cured these two cases. I had another, where it made some progress in the few days she staid with us. I cured a girl, in private practice, with it. I may, therefore, venture to affirm, that it is a medicine of much efficacy, in a disease otherwise incurable by medicine. The patients generally applied it only twice a day, if there was any tendency to inflammation; if not, as often as they pleased. It is ordered to be applied with a pencil; but our ointment was too hard for that, and the patients applied it with the point of the finger. It is improper to use it during inflammation, as it tends to inflame. But that effect may depend much on the degree of levigation, as the finer it is, the less apt it will be to stimulate. It cannot act by absorption, as the tutty, pearl, and haematites, are not soluble in the lachrymal fluid; and there is too little of the aloes to have any effect that way. It must act by friction and detrition abrading the external coats, where the coagulated lymph is situated. The *os sepiæ* and glass levigated are said to cure it; and they can act in this way only.

S E C T. XI.

Experiments upon Antispasmodics.

There is a very numerous class of diseases which arise from the involuntary contraction of the muscular fibres, in whatever part of the body they are placed. These involuntary contractions are either continued, or they alternate quickly with relaxation. Hence, with regard to the symptoms of such diseases, a very material distinction is made; and the former are called Tonic, and the latter Clonic. But the remedies appropriated to the cure of these two different orders, and their genera, are, by authors, classed together; and Antispasmodic is the name they receive, whether we consider too great irritability alone, or irritation, as the cause of these diseases; or continued or alternate contractions, as the effects produced.

These antispasmodics have, indeed, been subdivided, from the nature of the diseases which they cure, into Antiepileptica, Anticonvulsiva, Antihysterica, Antiemetica, &c. But still they are treated of as fit to cure that whole class of diseases. A discrimination,
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therefore, of them; settling their proper effects; ascertaining their relative powers; fixing the particular diseases in which they are beneficial, would be an useful, but an arduous task, too much for one man, or perhaps for one age, so many having already elapsed, and so little done to purpose. Each, however, may contribute his share, by recording the trials he has made; for it is only from a number of experiments that any certain general rules can arise. I shall, therefore, select a few of the trials which I have made. It is better to arrange these from the remedies used, than from the diseases in which they were prescribed. This is the most proper way of considering them. Hitherto they have generally been viewed from the diseases,

F E A R.

Fear has often been employed by physicians as an antispasmodic, in the cure of hiccup, hysterics, convulsions, and the ague before the bark was discovered.

EXPER. I. June 3. 1769, Elspeth M'Leod, 22, has been, for some time, affected frequently each day with the globus hystericus,

hystericus, convulsions of her arms, and singultus. Menfes regular; P. 72, and rather weak. She had been bled at the first attack, had got a vomit, T. rh. mosch. aether, and L. L. without success. She got a fright, and all the symptoms disappeared for five days; but they returned.

I have tried it in the hysteria, and in the singultus; but it either did not succeed, or the disease soon returned. This antispasmodic is liable to many objections. In slighter cases, it may do service; but in feverer, it either does not succeed, or keeps off the spasmodic affection but for a short time. Its effects are various in different persons, sometimes severe; and we cannot regulate them. It is also observed to produce amenorrhoea.

BALNEUM FRIGIDUM.

The cold bath has been used in several chronic spasmodic cases. Hence I tried it.

EXPER. II. George Drummond, Exp. XCVII. had a hemitotonos Sauv. or convulsion of the whole left side. On his going into the cold water, which was contained in a bathing-tub, he was immediately

diately seized with a severe fit. Two days after, he made use of the shower bath. But, immediately on receiving the shock, a most severe fit came on, in which the right side was, for the first time, convulsed, the left much more than usual, and a greater coldness seized his legs and feet.

VENÆSECTIO.

Bleeding is justly classed amongst the antispasmodics.

EXPER. III. June 8. 1770, Anne Stalk, 19, has had the menstrual discharge diminished for a year, during which time she has been subjected to hysteric fits, preceded by drowsiness, nausea, tremblings, chillness; and attended by crying, laughing, convulsive motions, and insensibility. The epigastric region is sore when pressed. Her pulse is regular. She was bled; and the blood was in a natural state. She got a vomit, rhubarb, fl. cardaminis, and valerian, with no advantage; but aether with some relief. On the 28th, instead of being convulsed, she became rigid. Fiat venæsect. ad unc. ix. Crassamentum in small proportion, and less adhesive. 30th, Easier since

since bleeding. July 1st, had a severe fit yesterday. R. P. Cort. Peruv. unc. i. val. silv. drach. iii. fyr. zinzib. q. 1. f. elect. cap. quod aequat magnit. nuc. mosch. quater in die. 13th, Had a severe fit, after which she lost some blood from her nose. I ordered her to be bled again; but, as the menses appeared, it was not done. 19th, Had yesterday many severe fits, since which she has complained of a stitch in her left side. Intermitt. elect. rep. venae-sect. ad unc. x. Blood did not separate into crassamentum and serum, so seemed of a loose consistence. After this, the fits gradually disappeared, returned again a little about the menstrual period, and after it were no more seen. This hysteria, though not attended with a state of inflammation, but with one directly opposite, was cured by bleeding, indicated chiefly by the epistaxis.

EXPER. IV. May 19. Barbara Weston, 20, on the 7th of May, had the menstrual flux on the 2d day suddenly stopped. Next day she was seized with cough, pain of her breast, and haemoptoe which lasted two days, during each of which she spit about a pound of blood. The next two days it
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was mixed with expectoration, after which time it disappeared. Since that she complains of giddiness, headach, dyspnoea, palpitations, and the globus hystericus. P. 112. Fiat venæsect. ad unc. x. Blood in a natural state. In a few days she recovered.

It therefore appears, that bleeding, to which practitioners are generally averse, is often necessary towards the cure of the hysteria. It is advantageous, chiefly where this disease arises from amenorrhoea.

The idiopathic asthma is certainly a spasmodic disease. In the cure of the asthma siccum, bleeding is known to be useful; but, in the humidum, it is esteemed of doubtful effect, as the spitting, which is thought to be so essential, may be diminished by it.

EXPER. V. December 7. 1776. Thomas Jones, 24, was, after slight hæmoptoe from a strain, seized, in the beginning of October, with great dyspnoea, which increased much during the night, and was attended with plentiful expectoration, P. 72. Fiat venæsect. ad unc. viii. Breathing not relieved by it. He got squills, merc. dulc. and cort. Peruv. in vain. January 13th,

13th, Complained, for two days, of a pain amongst the short ribs of the left side, and had spit a little blood. P. 75, and rather strong. Fiat. venaes. ad unc. ix. Blood has some inflammatory crust. He was not much relieved by the bleeding.

EXPER. VI. December 13. Margaret Elder, 34, had the menstrual discharge stopt for a year. For six weeks has had dyspnoea, hoarseness, pain of the left side, violent cough, with much expectoration, which had a little abated. Complains of a severe pain in her breast, on the left side, which next day shifted to the right. P. 144. Had been bled on the 11th. Fiat venaesect. ad unc. x. Blood has much inflammatory crust. After this the expectoration seemed to increase. But, notwithstanding emetics, squills, laud. liq. p. Helen. blisters often repeated, &c. she died. On opening the body, the passage of the trachea was much diminished, by the swelling of the cartilages about the glottis. A polypus of a large size, and firm consistence, was fixed to the anterior part of the right auricle, passed into the right ventricle, to which it adhered, entered the pulmonary artery, and even
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an inch into its two branches. There appeared to have been an inflammation and suppuration in the right auricle, at the base of the polypus.

EXPER. VII. November 28. 1778. David Bell, in a severe asthma, with plentiful expectoration, was bled four times, and relieved after each bleeding.

EXPER. VIII. November 24. John Murray, 60, seized with asthma and plentiful expectoration, eight weeks ago. Bled twice; and his breathing became much easier after it. In these four asthmatic cases, bleeding was of no use in the two former; but alleviated the symptoms in the two latter.

It is not yet settled what effect bleeding has in the epilepsy.

EXPER. IX. May 29. 1770. Millar Logan, 11, subject to epileptic fits since the first of January. P. 100, and weak. While he was attacked with one or two each day, June 30th, was bled to unc. vi. Blood in a natural state. Had a continual succession of fits after it. August 2d, bled again. Blood a little inflammatory. Fits after it more frequent. He was evidently

dently worse after bleeding. Probably it must always be so when the pulse is weak, which was the case in this boy. But it must be otherwise when the pulse is strong.

In the primary singultus and hiccup, which is a convulsive motion of the diaphragm, bleeding I have found the remedy most to be relied on.

EXPER. X. February 29. 1776. Margaret Haig, 23, unmarried, of a sanguine habit, was in the Infirmary three years ago, for an hæmoptoe, and recovered in six weeks. She afterwards returned with hæmoptoe, palpitation, and stomachic complaints; and was dismissed in a month. She returned a third time, about a year ago, with hæmoptoe and fever. She returned a fourth time, in May last, with hysteric symptoms, as startings, tinnitus aurium, palpitations, globus hystericus, and severe convulsive fits. At present is affected with constant pain in the left side, attended with some convulsive contraction of the muscles there, tickling dry cough, difficult respiration, headach, vertigo, thirst, sickness, eructations and cold sweat. But her greatest complaints are frequent fits of

X

hiccup.

hiccup. She feels a coldness before the paroxysm comes on. During it she has a great pain across the thorax and abdomen, and the headach is increased. She has a nausea after it is over. Her belly and urine are natural. Menfes in small quantity. Her pulse between 90 and 100, and rather strong. Fiat venaesect. ad unc. x. Blood natural. March 2d, much eased. Rep. venaesect. ad unc. x. Blood fizy. Pain easier. 4th, P. 106, and strong, still complains of pains. Rep. venaes. ad unc. viii. Blood natural. 6th, The Menfes appeared, and disappeared on the 7th. On the 9th they returned, and remained to the 11th. This day, after a quarrel with a companion, the hiccup returned, and continued for some hours. 12th, Had an hysteric fit without hiccup. 16th, All complaints gone, and dismissed. Even then I thought her pulse too strong.

EXPER. XI. February 14. Peggy M'Intosh, 24, unmarried, fair, and of a full habit, was formerly healthy; but received a stroke on the left side, about four years ago, since which she has been affected with pain there, and oppression about the praecordia, anxiety, flatulency, globus hystericus;

hystericus ; but no hysteric fits. For three months has been affected with cough, pain about the stomach, and a great degree of flatulency. Menfes irregular as to time, quantity, and duration. About a week ago, was seized with severe hiccup, during which she complains of acute pain about her heart, stomach, across her sides, and in the small of her back. Even in the intervals, has those pains. Headach, and great flatulency. Her pulse, though at first somewhat quicker, was, during the course of her disease, rather slower than natural. For the hiccup she got mosch. assa foetid. aether. L. L. electricity, valerian, camphire ; and Ward's volatile essence, theriac. and empl. antihyst. applied to the part, for six weeks, in vain. March 31st, seized with a severe cough, which increased the pain of her side. Fiat venaesect. ad unc. ix. Blood natural. The hiccup after this went off ; and she was dismissed well, on the 5th of April.

EXPER. XII. April 2. 1778. Janet Kennedy, 42, married, and never troubled with any hysteric complaint, about four years ago, was affected with amenorrhoea ; and since that time has menstruated thrice only.

Half

Half a year after, was often troubled with hiccup. About three years ago, she was seized with difficult breathing, pain in the region of the stomach, and in the left side, immediately under the short ribs. These complaints continued for three months. About six months after this, she was seized again with difficulty of breathing, which gradually came on, attended by oppression about the praecordia. About two months ago, violent eructations of wind from the stomach began to appear, which at present make the most apparent symptom of her disease, along with a loud noise in respiration, which seems to arise from convulsive motions of its organs. The wind appears to her to arise from the bottom of the abdomen, to the stomach and throat; and when it gets away, to rush out with great force, which relieves her for a short time. If it stops before it gets out, as it sometimes seems to do, for a short time, she feels as if going to be suffocated. After any passion or surprise, the eructations came on, she feels a constriction in her throat, and cannot speak for some time. The abdomen is considerably tumified; but no fluctuation felt. She has

pains

pains in the right and left side, and in the back ; seemingly, in the course of the diaphragm. Has constant palpitations of the heart ; but her pulse is neither irregular nor intermittent. It was 120 the day she came in ; but is, generally, about 96. It was always rather strong, especially for one of her habit and emaciation. Her menses never appeared but once, since her last illness came on. Tongue clean, and but little thirst. No appetite. Belly always costive. She got a laxative, and *spt. aether. vitr.* 5th, Cheeks red, and palms of her hands hot. *Fiat venaesect. ad unc. viii.* 6 oz. only of blood were taken, which was fizy. 6th, Breathing easier, and pulse rather stronger. *Rep. venaesect. ad unc. viii.* Blood in a natural state, but the crassamentum adheres firmly. 7th, Flatulency, dyspnoea, pain in her side, even when it is pressed, constriction of throat, and swelling of abdomen diminished. 8th, P. 110, and rather strong. *Rep. venaesect. ad unc. viii.* The serum appears turbid, the blood otherwise in a natural state. 11th, Pains in the course of the diaphragm, and swelling of the belly gone. Feels only a constriction of the throat, and
 straitness

straitness of her breast when she stoops. After this, we saw nothing but the appearance of common flatulency, from debility of her stomach, which continued, though she got the bark. 27th, Dismissed cured.

This patient, about three weeks after dismissal, had a relapse. She then complained of severe dyspnoea, and was sensible of a resistance to the entrance of the air into her throat; and her respiration was attended by a harsh croaking sound. Tho' the abdomen seemed rather tumified, she did not feel the wind rising from the inferior part of it, as before; but was sensible of the stomach swelling on inspiration. She was plentifully bled; but it afforded no relief. She got L. L. and sp. c. c. without advantage. She complained of a pain at the pit of her stomach, to which a blister was applied, without giving her ease. She died in two weeks.

When opened, the passage through the larynx, below the ventricles, was much diminished, and only an oblong slit left, through which a sixpence passed with difficulty. This was owing to a thickening of the internal membrane of the larynx; and the edges of the ventricles were much thickened.

thickened. Their muscles could not be distinctly observed. The thyroid gland was much enlarged, and divided into two distinct lobes, lying on each side of the trachea. The lungs contained some frothy fluid. The superior surface of the diaphragm was slightly inflamed, particularly at its union with the mediastinum. No adhesions of the lungs and pleura.

This was a curious species of singultus, under which, though it had some peculiar appearances, I arrange it; as she had a distinct hiccup before the first attacks of her present complaints; as her pains were in the course of the diaphragm; as she had a convulsive respiration; as she could not speak during the severity of the fit, the diaphragm being so necessary to the voice; as passions and surprise induced the paroxysm; and as it was attended with palpitation of the heart.

To cure this case of seeming flatulency by bleeding, appeared at first somewhat uncommon. Had I viewed that symptom as the principal complaint, I would not have bled her, as flatulency generally arises from debility. But, on the 3d day, I saw the disease was of the inflammatory kind;
for

for it proceeded from amenorrhoea ; it began and was attended with violent pains in the breast, sides, and back ; her pulse was strong ; the palms of her hands were hot ; her cheeks were red that day ; and her breathing was difficult. I attribute the whole of the cure not to the aether, but to the bleedings, as she was manifestly easier after each.

From these three cases, the following observations arise.

1. That the hiccup must be distinguished, 1. Into symptomatic, in which form it generally is seen in fevers, gout, hysteria, worms ; and into idiopathic, in which pure state it is seldom to be met with ; on which account I have described these cases fully. 2. Into acute, when there is fever ; and into chronic, where there is none. Hoffman properly made this distinction.

2. That women are most subjected to this disease, as all the three patients are of that sex. They are more irritable, and alone subjected to the amenorrhoea. On this account, the unmarried must be most liable to it.

3. Headach, cough, flatulency, and pains in the course of the diaphragm, are the
constant

constant attendants of the singultus ; all which arise from the seat of this disease, and from the nervous consent of other parts with those affected.

4. It is remarkable, that all the three cases arose from deficient menses.

5. Bleeding was used with success in all these cases, and which, probably, may be considered as a general remedy in the cure of idiopathic singultus.

E L E C T R I C I T Y.

EXPER. XIII. Peggy M'Intosh, Exper. XI. in singultus, received the electrical shocks for four days. The first day, the hiccup immediately attacked her when she came from the wheel. The third day, it returned while she was electrified, from the fright, as she imagined.

EXPER. XIV. James Finlayson, Exp. XXVI. used, in the tremor palpitans Sauv. electricity for five days, without benefit. In both these convulsive cases electricity failed.

Y E P I S P A S-

EPISPASTICS.

That blisters are antispasmodic, in many cases, as in spasms of the intestines, epilepsy, &c. is indubitable. That they are so in all, is not yet proved.

EXPER. XV. July 10 1770, Hanaw Douglas, 18, regular in her menstrual discharge, has been affected, for three weeks, with an almost continued hiccup; but which is much increased during the night, while in bed. A quarter of an hour before the fit comes on, she is sensible of a swelling of her stomach, by which she knows its approach. She feels much pain during the fit about the heart, and across the short ribs; and vomits frequently. The pyrosis very often attends its retreat. Belly bound. P. 72, and weak. She had already got a vomit, and a blister to her stomach. She got another vomit, Inf. amar. cum fenn. mosch. aether. L.L. gtt. xxv. ter in die. Cort. Peruvian. theriac. drach. fs. camphire gr. viii. which sweated her, hot bath and cataplasm. aromatic. to the part; but they had little effect, except the hot bath, which mitigated

mitigated the disease. August 1st, applicet. empl. episp. perlongum costis spuriiis, secundum nexum diaphragmatis. The hiccup appeared no more, excepting slightly on the 4th. On the 6th, she was dismissed cured.

EXPER. XVI. Margaret Haig, Exper. X. had a blister applied to the same part, towards the latter end of the disease, which relieved her for three days. But the hiccup returned.

EXPER. XVII. Peggy M'Intosh, Exp. XI. had a blister applied in the beginning of the disease. The symptoms abated for three days, but recurred as bad as ever.

EXPER. XVIII. Janet Kennedy, Exp. XII. had a blister applied along the course of the diaphragm, to ease the pain she had there. The pain was removed; but the convulsive breathing was not much affected by it.

Blister, then, as a complete cure of hiccup, have succeeded in one case only out of four. Was their success, in that case, owing to the disease not being inflammatory? This is not probable, as the inflammatory state was removed by bleeding in Exper. XVI. and XVIII. before the

the blisters were applied. Was it because in her, alone, the hiccup did not arise from amenorrhoea? In the others, there was, perhaps, some topical uterine cause; in her, only, mere irritability, which admitted more easily of temporary relief.

EXPER. XIX. Thomas Jones, Exp. V. was blistered for his asthma; but without any good effect.

EXPER. XX. Margaret Elder, Exp. VI. affected with asthma, after bleeding, had a blister applied to her back. Next day she had another blister applied, on account of a pain under the left clavicle. The symptoms abated a little for a day or two, and she spit up more plentifully; but the disease recurred.

EXPER. XXI. Feb. 19. 1776, Elizabeth Muire, 47, subject for two years to asthmatic complaints, was seized last November with a fit, attended with gross expectoration, which she difficultly got up, cough, pain of her sides, and orthopnoea. P. 78, and of natural strength. After a vomit, laxative, and mixture of acet. scillit. was blistered on the 26th; but no better.

EXPER.

EXPER. XXII. Feb. 10. 1778, John Johnstone, 60, corpulent, was seized, two years since, with cough and white viscid expectoration, which has continued. About seven weeks ago, he felt pains darting across his breast. At present, complains of cough, and severe pains in his breast, but worse in bed, attended by plentiful expectoration of mucous matter; dyspnoea and orthopnoea, which are worst in moist and calm weather. He cannot lie on his back or left side; but easily on his right or belly. Urine pale. P. from 84 to 90, and of natural strength. Fiat venaes. ad unc. viii. Blood in natural state. Got a mixture, with acet. scillit. 15th, Pain of the breast still continues. Rep. venaes. ad unc. ix. Blood in natural state. Applic. empl. epispast. inter scapulas. 17th, P. 96, and in right arm of natural strength, weaker in the left. Lies always on his back. Belly swelled. Expectoration comes up with more difficulty. Still the pain of breast and dyspnoea. Wine ordered. 18th, P. 124, and weak. Great dyspnoea. Hands tremble. Abdomen much tumified; but no fluctuation. Urine passes involuntarily,

ly, insensibly, and in great quantity. Aplicet. empl. epispast. pect. 19th, Died this morning. When opened, the intestines were much distended with air. The liver was small; and the lungs adhered to the pleura all around, and to the diaphragm, pericardium, and mediastinum. All else in a natural state. As we find no other cause of asthma but the extensive adhesion, and as the symptoms differ in appearance from the common asthma, I must hold the adhesions to be the cause, and not the effect, of his disease. This is probably a new species, not mentioned by Sauvages. In none of Morgagni's dissections, where such adhesions are found, do I remember any difficulty of breathing. But there are many in Lieutaud; and one positive overbalances many negative proofs.

In these four asthmatic cases, blisters did no real service. But we must allow, that the last asthma is to be attributed less to spasm than to adhesion, in which blisters could be of no advantage.

EXPER. XXIII. Eliz. Donaldson, Exp. CXVI. affected for eleven days with dysphagia, or spasm of the oesophagus, got a blister applied to the back, directly opposite

site

sited to the place where she felt the pain. The difficulty of swallowing seemed rather increased the next day. Another antispasmodic cured it, as we shall afterwards see.

On the whole, blisters do not appear to be powerful antispasmodics, in the above list of spasmodic diseases.

V A L E R I A N.

We now proceed to internal medicines. Since Fabius Columna's time, who cured himself of an epilepsy by valerian, it has been in great request. But, as it always happens, authors have narrated their successful, not their unsuccessful attempts; so that, without having fixed its value, we proceed blindly, prescribing what will very often not answer.

EXPER. XXIV. May 14. 1769. Margaret Smart, 22, regular in the appearance of the menstrual flux, has been subject, for six years, to epileptic fits, which she thinks were first owing to a fright. The fits last about a quarter of an hour, of which she had six to day. Has sometimes a severe stitch in her right side. P. 76, and rather weak. ℞. P. valer. silvest. drach. ss. pro

pro dof. cap. quater in die. 18th, Fits less frequent. Repet. p. val. filv. quinq. in die. 22d, Cap. p. val. filv. scrup. ii. quinq. in die. 24th, Had nine fits this day ; so it was given up.

EXPER. XXV. Dec. 3. 1774, Janet Lyon, 24, and her menses regular, though in small quantity, is subject to globus hystericus, slight convulsive fits, swelling of stomach, frequent vomiting of food in an acid state. P. 70, and weak. She got T. sacra often; castor, bark, tinct. cursutaë, L.L. theriac plasters to her stomach, and aether, in vain. Jan. 6th, cap. p. valer. f. drach. fs. quater in die. 8th, Cap. p. valer. scrup. ii. quater in die. 9th, The dose augmented to drach. i. 11th, Complaints no better ; so the valerian was omitted.

EXPER. XXVI. Feb. 10. 1776, James Finlayson, 22, subjected to palpitations of his heart for two years. Has been, for six weeks, affected with convulsive motions, or palpitations of the different muscles over all his body, seizing different parts at different times. P. 100, and weak. He began with drach. fs. of valerian, and came to take drach. i. four times a day. But,
on

on the 25th, it was given up, as he was no better.

EXPER. XXVII. Peggy M'Intosh, Exp. XI. in singultus, began with drach. i. of valerian, four times a day, while her P. was 64, and soft; and the 3d day took drach. ii. four times. Used it for ten days without success.

EXPER. XXVIII. January 30. 1776. Thomas Paterfon, 41, subject to rheumatism, affected for three months with violent cephalalgia, which is severest after mid-day. Having taken a dose of physic, he began valerian, drach. i. four times a day, for six days, without success.

EXPER. XXIX. March 27. 1778. Isobel Buchannan, 53, was affected for two months with vertigo and palpitations. P. 72, and rather strong. Had been bleed, and it was repeated. She got valerian to drach. i. ss. four times a day. In eleven days she was dismissed cured. The bleeding may claim the merit of this cure, as well as the valerian.

EXPER. XXX. December 21. 1778. Thomas M'Claren, 18, has been affected with a chorea St. Viti for three weeks. He got drach. ss. four times a day; and by de-

grees it was augmented to drach. i. On the 4th day after he began it, all his complaints were better, the convulsions diminished, his walking became more steady, his speech plainer, and his deglutition natural; but his startings during sleep still continued. On the 11th, the convulsions were almost gone, and no startings or palpitations. But his recovery did not advance after this, and he was cured by the bark.

EXPER. XXXI. January 15. 1779. Janet Wilson, 15, was seized with the same disease a fortnight ago, after exposure to cold and a fright. She got p. valer. sylv. drach. i. quater in die, for four days; but without any effect.

EXPER. XXXII. November 26. 1778. Joseph Harley, 14, had laboured for several weeks under a catalepsis. He took p. valerian. scrup. ii. four times a day, for six days, at the end of which time he was seized with a fit much more approaching to the epilepsy, than any of the preceding. The medicine was given up.

In the preceding cases, the valerian has been remarkably unsuccessful. The situations appeared such, as I should have imagined would have been favourable to

its operation, as they were of the debile kind. For, probably, when it does service, it acts as a bitter tonic, as it is of the nature of serpentary. It stimulates ; and therefore must hurt in inflammatory cases. Though much used at present, it has always appeared to me a weak, often a hurtful medicine.

M U S K.

Musk was used by the antients and Arabians ; and, since our intercourse with China, has been much prescribed by the moderns, especially in convulsive diseases. But we have, perhaps, over-rated its value.

EXPER. XXXIII. Margaret Smart, Exp. XXIV. June 14. began, for epileptic fits, the musk, of which she took gr. xv. dissolved, by the mucilage of gum Arabic, in a mixture, morning and evening. 31st, Had ten fits, so it was given up.

EXPER. XXXIV. Elspeth M'Leod, Exp. I. in hysteria and singultus, got gr. xv. of musk, thrice a day, for five days ; at the end of which her hysterical symptoms were worse, and her hiccup as severe.

EXPER.

EXPER. XXXV. May 22. 1770. Christian Young, 24, regular, being suddenly cooled when overheated, five months ago, has, since that time, had a pain in the hypochondria. She is now seized with frequent fits, which begin with convulsive motions of the abdominal muscles, and are soon followed by hiccup, and convulsive motion of the under jaw. The paroxysm lasts about five minutes, during which the pulse is very quick, and not easily numbered. Any surprise brings it on; and, when in the paroxysm, a surprise carries it off. She is seldom attacked while in bed. Began with musk gr. x. in mixture, thrice a day, which were soon increased to gr. xv. Neither the pulse, nor heat of the body, were altered by the musk, as appeared by two experiments which were made on her. It was continued to the 28th; but without any success.

EXPER. XXXVI. Hanaw Douglas, Exp. XV. in the hiccup, took the above doses of musk, for three days, without any effect.

EXPER. XXXVII. Peggy M'Intosh, Exp. XI. for the hiccup, got musk in a mixture;

mixture ; but, though it gave some temporary relief, the disease always returned.

EXPER. XXXVIII. March 14. 1776.
Ann Cameron, 30, menses regular but in small quantity, has been affected, for fourteen months, with the sensation of a ball in the throat, convulsive startings over her whole body, and pain in her right side, back and head. These complaints come in paroxysms, in which she knows what is doing around her. During these, her pulse is much quickened. After trying ass. foet. L. L. merc. dulc. till her mouth was affected, and she spat a little, she began the musk ; but to no purpose.

These six cases, purely spasmodic, in which musk was exhibited, without one of them being cured, cannot afford us a very favourable opinion of its antispasmodic powers. We own, that this medicine is often adulterated. But, then, the doses given were very considerable, and able to make up for any deficiency from adulteration. We see, from Exper. XXXV. that it neither quickens the pulse, nor increases the heat of the body ; so that, in feverish cases, we need not be afraid of such effects.

C A M-

C A M P H I R E.

This medicine is not so often used as the former in spasmodic cases ; but, whether on just grounds, is still left to be decided by experiment.

EXPER. XXXIX. July 23. 1769, Katherine Innes, 22, obstructed for seven weeks, was seized lately with headach, globus hystericus, dyspnoea, fits of crying and laughing, nausea, acidity, pain in her left side, and at times a little haemoptoe. P. 100, and rather strong. She was bled, and got physic. Afterwards, she began camph. gr. vii. in a mixture dissolved by the muc. of gum Arab. thrice a day. The pulse became slower after each dose ; but the heat was not altered. The dose was afterwards increased to gr. x. 29th, Pain of the side and headach easier. Sleeps better. Aug. 2d, Dismissed cured.

EXPER. XL. Barbara Weston, Exper. IV. who owed her cure in hysteria chiefly to bleeding, got, after venesection, camph. gr. x. dissolved, thrice a day. Perhaps a part of the cure may be imputed to it.

EXPER. XLI. Jan. 6. 1775, Jean M'Lauchlan, 20, menses regular, but in
small

small quantity, had been in the Infirmary before for tremors and hysteric fits, and cured chiefly by camphire, got L. L. aff. foetid. aeth. bark, &c. without effect. Began camphire, and took it for five days, but without advantage.

EXPER. XLII. James Finlayson, Exp. XXVI. in Tremor Palpitans Sauv. got camphire in a julap, for three days; but without success.

EXPER. XLIII. Peggy M'Intosh, Exp. XI. in singultus, got camphire in a julap for nine days. She was much relieved at first by it; but the disease returned again.

EXPER. XLIV. Janet Kennedy, Exp. XII. towards the latter end of her singultus, got the camphire julap with some advantage. But it was given up, as it seemed to increase the flatulency.

From these six cases, we may conclude,
 1. That camphire has some merit as an antispasmodic in the hysteria and singultus, and that it is more powerful than musk.
 2. That it is chiefly useful in the inflammatory spasmodic cases; as it makes the pulse slower, and rather cools; and, as the success of it in the XXXIX. XL. XLIII.

XLIII. and XLIV. experiments, which were all of that kind, shew; while the the XLI. and XLII. experiments, where it was unsuccessful, were of the contrary kind. 3. That its antispasmodic effects are not of long duration; and the disease is apt to recur, as appears by the XLI. and XLIII. experiments.

C A S T O R.

Castor is much used as an antispasmodic. But, on what foundation such practice is built, is still to be inquired into.

EXPER. XLV. May 14. 1769, Elison Graham, 15, and who has not yet menstruated, has been, for two months, attacked with hysteric paroxysms, twice or thrice a day, along with acidity and flatulency of stomach. P. 86. Cap. pulv. cast. Ruff. scrup. i. fyr. q. f. ut f. bol. mane et vesper. In two different trials, her pulse became considerably slower after the bolus; but the heat remained the same. She continued this medicine for three days without any effect.

EXPER. XLVI. August. 4. 1770, Anne M'Donald, 20, after exposure to cold, was seized

seized with an eruption like that produced by the stinging of nettles, which appeared and disappeared. In eight days, it went away, and she was attacked with pain, acidity of stomach, palpitations of her heart, especially on walking, headach, and globus hystericus. P. 56. She got a vomit, and then P. cast. scrup. i. thrice a day. Pulse slower after her medicine, but heat the same. 6th, Much better. Pain of right side. Applic. emp. calid. Ph. Paup. 9th, Former complaints gone. After this, was seized with gentle haemoptoe.

EXPER. XLVII. Janet Lyon, Exper. XXV. with hysteric complaints, got castor, scrup. i. for five days; first twice, then thrice a day; but without effect.

From the above experiments, this medicine appears not worthy of the confidence we put in it, nor to be much relied on. At the same time, it seems not only safe in spasmodic feverish cases, but useful, as it makes the pulse slower, and acts as a sedative. Hence its powers of giving sleep.

ASSA FOETIDA.

This medicine has been one of the most employed antispasmodics for many years. Let us view its powers.

EXPER. XLVIII. August 6. 1770, Margaret Emery, 18, menstruates copiously every 8 or 14 days. Attacked, on the 2d, with hysteric fits, which are frequent, but of short duration. P. 76, and of natural strength. After a vomit, she got the pil. foetid. which were changed on the 13th for a mixture of ass. foetid. of which she took drach. i. a day. 16th, No fits for three days. 20th, Dismissed cured.

EXPER. XLIX. Feb. 14. 1773, Margaret Pettie, for globus hystericus, dyspnoea, and retraction of the abdomen, got ass. foetid. scrup. i. ter in die. It always excited violent vomiting, even although 40 gtt. of L. L. were added to each dose.

EXPER. L. March 10. Anne Gordon, 33, has been affected, for six years, with hysteric paroxysms. They attack her once a day since the 5th. P. 86. Menfes regular. Got a mixture of ass. foetid.; and she

she gradually recovered; so that she was dismissed in a few days.

EXPER. LI. Dec. 11. 1774, Margaret Sammerville, 36, obstructed for four months, was, six weeks ago, seized with hysteric fits, swelling of stomach, vomiting, and costiveness. P. 100. Got of ass. foet. dissolved scrup. i. four times a day. 12th, Complains that she is seized with pains in her stomach after each dose. 15th, Belly more open. All complaints gone, excepting the swelling of her stomach, and pain of the back.

EXPER. LII. Janet Lyon, Exp. XXV. got jul. foetid. P. P. unc. i. thrice a day, with L. L. gtt. x. in each dose. She took it for three days, but thought herself worse during the use of it.

EXPER. LIII. Dec. 25. 1778, Janet M'Donald, 12 years old, was seized, after a fright, about three weeks ago, with hysteria. She got pulv. fol. aurantior. camphire, bark, but without effect. At last, ass. foetid. given to scrup. i. a day, stopped her fits, and cured her disease.

EXPER. LIV. Elizabeth Donaldson, Exper. CXVI. in dysphagia, got ass. foetid. scrup. i. thrice a day, with L. L. and had
clysters

clysters of it often ; but without much effect. I thought it was of use before, to a Lady, in the same disease.

Though not always successful, this medicine seems to enjoy considerable antispasmodic powers. As it heats and quickens the pulse, it must always be improper in inflammatory cases. With some, from peculiarity of constitution, it seems to disagree, and to excite pain in the stomach and vomiting. The former situation may be known before, the latter can be known only after the exhibition of this medicine.

SPIRITUS ÆTHEREUS VITRIOLICUS.

Æther is, at present, much used as an antispasmodic. Let us, therefore, consult our cases, to see what judgment is to be formed of its powers.

EXPER. LV. Elison Graham, Exper. XLV. in hysteria, May 23d, began the use of æther, a tea spoonful in a gill of water, twice a day. When given just before the fit, which came on twice a day, at stated times, it put it off for an hour. After the fit had actually begun, the æther suspended

ed it for 20 minutes. 27th, Fits less frequent. Takes aether thrice a day. 28th, Takes it four times a day. June 2d, Has but one slight fit a day. 6th, Gets six doses a day. 8th, Fits almost gone. Got some tonics.

EXPER. LVI. Elspeth M'Leod, Exp. I. with hysteria and hiccup, was ordered a tea spoonful of aether every fifth hour. Took but two doses, as each was attended with convulsions ; so she got no more.

EXPER. LVII. April 13. 1774, Janet Robert, 30, obstructed for a year, was seized, about two years ago, with globus hystericus, dyspnoea, and vomiting. She got an emetic, purgative, and pil. foetid. 18th, Began aether, a tea spoonful four times a day, in water. Thinks that it excites a warmth in the stomach, and eases the pain there. On the 21st, hysteric complaints no better ; so the aether was given up.

EXPER. LVIII. Feb. 28. 1776, Helen Colvill, 19, subjected to hysteric fits for four years, got aether for four days ; but was no better.

EXPER. LIX. Anne Cameron, Exper. XXXVIII. in hysteria, took aether four times

times a day, for seven days. It often removed the paroxysm after it had begun; but the disease was not cured.

EXPER. LX. March 2. 1778, Betty Edmonstone, 18, obstructed for six months, was seized, five months ago, with globus hystericus, shivering, convulsions of the whole body, and starting during sleep. P. 80, and of natural strength. She began with one tea spoonful, which was gradually increased to four, four times a day. It sometimes raised a pain in her stomach. After the 8th, no hysteric fits appeared.

EXPER. LXI. November 24. Grace Wilson, 25, in hysteria, took of aether cochl. parv. iii. quater in die. It cured her.

EXPER. LXII. Janet M'Donald, Exp. LIII. got aether to cochl. parv. ii. for a dose, four times a day. It often stopped her fits, but did not cure her.

EXPER. LXIII. December 12. 1776. Jean Sutor, 12, has been subjected to epileptic fits for four years. They come on with vertigo and remarkable coldness of hands and feet. In the fit she is insensible, and has great variety of convulsive motions. It lasts about a quarter of an hour,

hour, and returns frequently each day. Headach. She has passed worms, and has some worm symptoms at present. I therefore began her with vermifuge medicines, such as *spigelia Maryland.* *P. stan. &c.* But these not succeeding, I ordered aether on the 21st, for her convulsive symptoms. About three minutes after each dose, her belly swelled, and turned harder. In five minutes it returned to its natural state. 27th, Passed a lumbricus worm; and next day another. After this she had no more fits, and was soon dismissed cured. A few days afterwards, she was seized with a pain in her belly, and convulsive motions of her arms. She came in again; got aether; the startings went off, and she passed another worm in two days. I then looked on the convulsive symptoms as proceeding from worms, which were killed by the aether. But having afterwards tried the aether, in three cases, where the symptoms appeared to proceed from worms, and the aether not succeeding, I have since suspected that the case was epileptic, and that the worms came away when the disease retired, as they often do in other cases.

EXPER.

EXPER. LXIV. Margaret Smart, Exp. XXIV. in epilepsy, got aether for seven days, but without any effect.

EXPER. LXV. G. Drummond, Exp. CXXI, in a hemitotono^s Sauv. got it to the length of four tea spoonfulls, four times a day. The left side of his head, where he complained of a pain before the fit came on, was rubbed with it thrice a day. He drew it in likewise by inspiration. But, after a fair trial, he seemed rather worse.

EXPER. LXVI. Peggy M'Intosh, Exp. XI. got it for her hiccup; but it did no service.

EXPER. LXVII. Janet Wilson, Exp. XXXI. got it in chorea St Viti, but without success.

EXPER. LXVIII. Janet Kennedy, Exp. XII. in the inflammatory singultus, got aether from the beginning. I am not sure that it did any service, so the bleeding got all the merit of the cure. But I am sure the aether did no harm, which it must have done, had it been of the stimulating kind. Hence we learn, that it will not hurt the febrile inflammatory state.

EXPER.

EXPER. LXIX. November 28. 1778. David Bell, 24, in an inflammatory asthma, got aether cochl. parv. i. four times a day, which dose was by degrees increased to three tea-spoon fulls. It was continued for twelve days, and got a fair trial. During the use of it his complaints were not alleviated. On the contrary, they seemed rather worse, as his defluxion was in much greater quantity, as his breast was more bound, and as he had regular cold fits.

This medicine, therefore, shows some powers in curing the hysteria. Of eight, it cured three, and relieved two. It is commonly observed that its effects are quick; and that, if it does not cure in two or three days, it will not after that time. I think likewise, that the effects soon disappear, and we can scarcely trust a cure performed by it. We find its good effects are not increased by increasing the dose, as the above cures were performed with small doses, while the largest did not succeed. I have not yet seen its success in any other spasmodic disease, the LXIII. excepted, if that was a primary disease, as I suspected. It appears to be a medicine of the

sedative kind; and, from Exp. LXVIII. not to be hurtful in inflammatory cases, which, if true, is a useful discovery. In some constitutions, however, it excites pains in the stomach, and convulsions.

CORTEX PERUVIANUS.

This medicine is used in a great variety of spasmodic and convulsive diseases. Let us endeavour to ascertain its value.

EXPER. LXX. June 9. 1770. Edward Oliver, 18, after a fright, has been for eight years subject to epileptic fits, which generally attack him when asleep, and has been fatuous for near two years. His fits are often stopped by raising his head from the pillow, and it does not awake him. He took the bark for almost a month, and his fits became very slight, and returned but seldom.

EXPER. LXXI. February 6. 1778. Isobel Buchannan, 18, while convalescent after a fever, was seized with hysteria. Got the bark, and recovered.

EXPER. LXXII. Christian Young, Exp. XXXV. in hysteria, got the bark, with a little p. cardam. min. and sal mart. which

which she continued for three weeks, and recovered.

EXPER. LXXIII. April 14. 1774. Robert Bain, 21, has been affected with epileptic fits for these two years. Took bark, with valerian, for ten days, and was much relieved by it.

EXPER. LXXIV. Peggy M'Intosh, Exper. XI. in singultus, got the bark for five days, but she was no better.

EXPER. LXXV. Thomas M'Claren, Exp. XXX. in chorea St Viti, was cured by the bark.

EXPER. LXXVI. Janet Wilson, Exp. XXXI. in chorea St Viti. Her convulsive motions were very much relieved by it.

EXPER. LXXVII. Joseph Harley, Exp. XXXII. in the catalepsis, was much relieved by it.

Thus the bark appears to be an excellent remedy in pure spasmodic diseases. But, as it is hurtful in all inflammatory situations, we must take care that such do not accompany the disease, when that medicine is ordered. All the seven, in which it was successful, were of the anti-inflammatory kind.

ARTEMISIA.

EXPER. LXXVIII. January 21. 1777. Margaret Gray, 36, hath been for many years affected with hysteric fits. After aether and aff. foet. had been tried in vain, I ordered P. fol. artemis. drach. i. quater in die. In a few days the fits disappeared.

PEONIA.

The root of this plant was much used by the antients as an antiepileptic; and Galen says that it cures the disease, though hung only around the neck. Such praises deserved attention.

EXPER. LXXIX. Millar Logan, Exp. IX. got drach. fs. four times a day. His fits became much less frequent, for some days. But, on the 8th day, had many fits, so it was given up.

EXPER. LXXX. Margaret Smart, Exp. XXIV. in epilepsy, took drach. fs. of the powder for eleven days. But without effect.

VISCUS

VISCUS QUERCINUS.

The mistletoe was long in estimation for curing epilepsy.

EXPER. LXXXI. Margaret Smart, Exp. XXIV. got P. visc. querc. scrup. ii. for a dose, at first thrice, and at last five times a day, for eight days, but without success.

EXTRACTUM HYOCYAMI.

EXPER. LXXXII. The preceding patient got at first gr. i. of the extract, twice a day; and then gr. ii. for fourteen days. It sometimes raised a nausea, but had no sensible effect on the belly. On the last day she had six fits, which made me give it up.

EXPER. LXXXIII. George Drummond, Exper CXXI. in hemitotonos, got of the extract of the seeds, gr. i. thrice a day, and then gr. ii. for six days; but the fits never abated. It produced thirst, with dryness and heat in the throat.

EXPER. LXXXIV. March 16. 1778, Janet Burn, 21, has been subject, for two months, to globus hystericus, fainting fits, frequent vomitings, attended often by hæmatemesis.

matemefis. After bleeding, cold water used externally and internally, T. rofar. laxatives, &c. were employed in vain, I ordered extr. fem. hyocyam. She began with gr. i. four times a day, and came at last to take gr. viii. each time. The smaller doses were attended with nausea; the greater doses produced vertigo, and dimness of sight. She continued this medicine for 20 days, but without success in the cure of the hematemefis, or even of the vomiting.

Hence, notwithstanding Stork's trials, it neither appeared to me antispasmodic, nor antihaemorrhagic.

FOLIA AURANTIORUM.

Du Haen and Hannes have recommended this in the epilepsy.

EXPER. LXXXV. Miller Logan, Exper. IX. in epilepsy, got first scrup. i. then drach. ss. four times a day, without any success. It produced no sensible effect.

EXPER. LXXXVI. Dec. 4. 1778, William Falconer, 50, affected with epilepsia for six years, got P. fol. aurant. from drach.

drach. fs. to drach. i. four times a day, without any success. Nay, he took, at once, five doses of drach. i. each, without producing any sensible effects.

EXPER. LXXXVII. Janet M'Donald, Exper. LIII. in hysteria, took it from scrup. i. to drach. i for a dose, four times a day, and for ten days, but without success.

These experiments incline me to call in question the antispasmodic power of this medicine.

CARDAMINE PRATENSIS LIN.

This plant, especially its flower, has been mentioned by Dale, and in the Medical Transactions, as good in convulsive and spasmodic cases.

EXPER. LXXXVIII. July 5. 1769, Daniel Donaldson, 65, has been attacked, for fifteen months, with convulsive motions in his legs, arms, and abdominal muscles, which deprive him of his speech, but not of his judgment. Cold, quick motion, and surprise, increase his disease. On pressing the parts below the cartilago ensiformis, convulsive motions of the abdominal muscles

cles are excited. P. 84, and weak. After a vomit, he got P. fl. cardamin. scrup. ii. mane et vesper. After he had continued it for five days, his fits were as frequent as usual.

EXPER. LXXXIX. Edward Oliver, Exper. LXX. got P. fl. cardam. drach. fs. during four days, for the epilepsy; but without success.

EXPER. XC. Anne Stalk, Exper. III. got, for hysteria, P. fl. cardamin. scrup. i. mane et vesper, for six days. The fits were less frequent at first; but, on the last day, they recurred as often as when she began it.

As this medicine is not kept in the shops, I was obliged to send some people to gather it. I was supplied with a small quantity only, so could not afford greater doses, or try it in more cases. It has not, in the above experiments, succeeded with me; and I should not, from its genus, be much inclined to expect great success from it.

O P I U M.

Opium is reckoned one of the most powerful antispasmodics.

EXPER.

EXPER. XCI. Margaret Smart, Exper. XXIV. epileptic, and often seized with the fit during sleep, got P. Matth. gr. viii. in the afternoon, and again at bed-time. Next morning, she had a severe fit.

EXPER. XCII. Miller Logan, Exp. IX. who had many fits during the night, got elix. paregor. first L, then LXXX gtt. four times a day. He took it for five days, and the last day had nine fits.

EXPER. XCIII. George Drummond, Exper. CXXI. affected with convulsio, for which he got merc. dulc. In each bolus, which he took always once, and sometimes twice a day, he got opium, gr. ii. for ten days. But it had no effect, except diminishing the purgative powers of the merc. dulc.

EXPER. XCIV. Christian Young, Exp. XXXV. in convulsive fits, got L. L. gtt. LX. thrice a day, then four times, for eight days. At first, the fit was suspended by it; but, at last, they recurred with their usual vigour. The hiccup, with which she had been before affected, returned on the 2d day after she had begun this medicine.

EXPER. XCV. Margaret Pettie, Exp. XLIX. in hysteria, got L. L. gtt. XL. with
C c aff.

aff. foetid. scrup. i. morning and evening ; but she threw it up twice. She got L. L. gtt. l. alone. Next morning, her headach, globus hyftericus, and constriction of the abdomen, were better ; and, by continuing the opiate, she recovered.

EXPER. XCVI. Elspeth M'Leod, Exp. I. affected with hysteria, and frequent singultus, got L. L. gtt. xx. every second hour. Next day, I found she had taken gtt. c. After the 4th dose, she turned easier ; and, though she got a fright during the night, complained only of headach and pain of stomach. The 3d day, she continued well. On the 4th, the hiccup returned once or twice, but no hysterical fit. On the 5th, the hiccup returned a little, and continued for some days in this way.

EXPER. XCVII. Hannaw Douglas, Exper. XV. in hiccup, got L. L. gtt. xxv. thrice a day. Each dose relieved the hiccup, and generally carried it off in half an hour after the medicine was taken ; but then the disease returned again. She was constantly drowsy or sleeping ; and the hiccup, on the 5th day, came on even when asleep. The opiate was then given up.

EXPER.

EXPER. XCVIII. Peggy M'Intosh, Exp. XI. in singultus, got L. L. gtt. xl. with tart. emet. gr. i. It made her sick, and produced, next morning, a plentiful sweat, during which the hiccup kept off for the whole day. On the 3d, the hiccup was moderate; and she got L. L. gtt. xxv. h. f. On the 4th, no hiccup; and got the opiate. On the 5th, the hiccup returned as severe as before; so it was given up.

EXPER. XCIX. Nov. 24. 1778, John Murray, 60, seized with asthma about two months before. The paroxysm comes on about 4 P. M. After the inflammatory state was reduced by several bleedings, he took, at 4 P. M. pil. thebaic. gr. x. divid. in pil. ii. He took the pills before the fit came on; the fit was much diminished; he slept well, and could lie easily on his back. He afterwards got elix. pareg. cochl. parv. i. He took it at 3 P. M. and was not sensible of any paroxysm. When taken after the fit came on, the drops made it easier.

EXPER. C. John Thomson, 18, in an asthma, for three months, got elix. pareg. cochl. parv. ii. h. f. He passed much easier nights after it; and his expectoration, instead

stead of being diminished, was promoted by it.

EXPER. CI. Janet Monro, affected with asthma for two months, was easier after an opiate.

From the above cases, opium seems to be a powerful medicine in the hysteria, as it cured both patients. It abated the singultus in both cases, though the disease again returned. In the epilepsy and convulsio, it seems to have done no good. It gave much relief in the asthma. In inflammatory cases, I would not chuse to exhibit this medicine till that state was corrected by sufficient venesection. I found this rule necessary to be observed, particularly in the asthma. But opium has often failed me in such cases as were of the anti-inflammatory fort.

CUPRUM AMMONIACALE.

This medicine has been much used of late in epileptic cases.

EXPER. CII. Margaret Smart, Exper. XXIV. in an epilepsy, got cupr. ammon. from gr. ss. to gr. i. ss. each night, at bedtime, for 25 nights. It generally excited
nausea ;

nausea ; but the disease was not alleviated.

EXPER. CIII. Edward Oliver, Exper. LXX. got, in epilepsy, cupr. ammon. from gr. i. to gr. iii. fs. twice a day. It generally excited nausea. His fits did not abate.

EXPER. CIV. Jan. 18. 1779, Alexander Leitch, 18, subject to epileptic fits, began cupr. ammon. gr. i. twice a day. At the end of some days, during which he had continued it, he came to take gr. vii. for a dose. But his fits were not diminished in violence or number.

EXPER. CV. Joseph Harley, Exper. XXXII. got cupr. ammon. gr. fs. twice a day. As it produced no sensible effect, he got gr. i. ; but it occasioned a smart vomiting ; so that we reduced the dose to gr. fs. This he continued for ten days, and had no fit ; so was dismissed. But I was told that the disease returned.

This medicine has, therefore, in none of these four cases succeeded. But, in the last, the fits were suspended by it for several days.

F L O R E S Z I N C I.

Since Gaubius's detection of the quack remedy used by Ludemanus, this medicine has been much employed. Let us view our trials.

EXPER. CVI. March 18. 1774, Robert Bain, 21, affected with epileptic fits for seven years, which did not often return. Had a tremor of his legs and arms. He began with fl. zinc. gr. i. morning and evening ; and took at last, after the period of near a month, gr. xxii. for a dose. These great doses had but little sensible operation. No fits came on during that time ; but the tremor and vertigo remained ; so that he fell to the ground, but without convulsions.

EXPER. CVII. Dec. 3. 1774, James Ewart, 52, has laboured under epileptic fits for eight or nine years ; and, of late, has had a paroxysm every ten days. The faculties of his mind are impaired. P. 80, and of natural strength. Had taken vomits, tart. emet. and camphire, before I saw him. His vision became bad three years ago. Has had a vertigo for two years.

He

He was put, at first, on a course of fl. zinci, beginning with gr. i. twice a day, and increasing the dose to gr. xviii. He was generally sick after it, and sometimes sweated. 23d, Had no fits till this evening, when he had a slight one, in which he was insensible, and foamed a little, but had no convulsions with it. Had no more fits, though he remained 20 days taking some mercurial medicines for his sight, which he recovered.

EXPER. CVIII. William Falconer, Exp. LXXXVI. in epilepsia, got flor. zinci, from the smallest doses to drach. fs. twice a day. They produced nausea, and purged him gently. It gave him some relief at first; but lost its power at last.

EXPER. CIX. Alexander Leitch, Exp. CIV. subject to epilepsia since ten years of age. He got flor. zinci from gr. i. to xl. for a dose, twice a day. But without success. With the largest doses he sometimes vomited.

EXPER. CX. John Murray, Exp. XCIX. in asthma, got flor. zinci gr i. h. f. The dyspnoea and cough were worse. He got gr. ii. next night, and was no better.

EXPER.

EXPER. CXI. David Bell, Exp. LXIX. in asthma, got flor. zinci, from gr. i. to xii. twice a day. He seemed easier at first, but the good effects did not continue.

EXPER. CXII. George Drummond, Exp. CXXI. in hemitotonos, got flor. zinci, at last to scrup. i. twice a day, for twelve days. It sickened him, but did no service.

EXPER. CXIII. Ann Cameron, Exp. XXXVIII. in hysteria, got flor. zinci to gr. viii. twice a day, for seven days, without effect.

EXPER. CXIV. Helen Colvill, Exp. LVIII. in hysteria, got it for five days without effect.

EXPER. CXV. Peggy M'Intosh, Exp. XI. in singultus, got, after the last bleeding, some doses of flor. zinci. But, as these went no higher than gr. v. and were continued but three days, I attributed the cure more to the bleeding.

This medicine appears, therefore, from these trials, to be a good antiepileptic; but not to be so powerful an antihysterical. The above doses may appear very great; but were found to be very innocent. It generally

rally produces a nausea, rarely purges, sometimes sweats, and often has no sensible effects.

M E R C U R Y.

Mercury has, of late, been considered as an antispasmodic. The first hint, so far as I know, which we got of this quality, was in the *Essays and Observations Ph. and Lit.* where we were told, that a surgeon of Jamaica had used it with success in the tetanus and locked jaw, having before that time lost many patients, to whom he had given opium and musk. His method of giving it was, by rubbing in mercurial ointment; and the symptoms went off, when the mouth was affected. Dr Lyson has narrated three cases of epilepsy cured by calomel. It may be supposed to act as a vermifuge in the latter cases. It could not in the former, as it was not given by the mouth. Such facts demanded our utmost attention.

EXPER. CXVI. March 1. 1774. Katharine Grant, 16, who never menstruated, had been, during the preceding winter, in the clinical ward, ill of a fever, of

D d which

which she had been cured and dismissed. In this fever she had complained of a pain in the left side, for which she was then bled and cupped, and was relieved. About the 18th of February, was again seized with the pain, which was situated between the short ribs and os ilium, and rather forwards, and became worse on pressure, and on full inspiration. Two days afterwards, she was seized with convulsive motions of the lower jaw, which continued, and were very frequent at the time of her admission. These were increased upon the least motion of her body; and especially when she attempted to speak. This was so evident, that, after they had ceased for several days, they were brought on again by speaking. They were always attended with a convulsive motion of the sternum, and organs of respiration, which different convulsive motions seemed to depend on one another. These, and the pain of the side, appeared to be intimately connected, as the pain was easier when the convulsive motions were gentle, and was worse when they were severe. When the pain of the side was acute, the breathing was always affected. She slept little or none; and, when she did,

did, started much. Belly regular, appetite good. Her pulse was at first from 120 to 130, and weak; but in a few days it was only 100.

I thought this trismus clonicus a good case for the exhibition of mercury; especially as I had failed just before, when I trusted to musk and opium, in the trismus tonicus of a young gentleman, who was seized with it, from a fracture of the small bones of the nose. She began, March 1st, the night she came in, with a bolus of merc. dulc. gr. vi. which was repeated each night, at bed-time. It generally opened the belly once or twice. On the 5th, P. 116, and weak. Sleeps ill, but no convulsions during sleep. 7th, P. 100, had three loose stools, and not slimy. Pain of the side and convulsive motions much easier. Sleeps much better. Complains of pain in her throat, and of her neck on both sides. Teeth loose. 8th, P. 110. Had a fit of her convulsive motions last night, during which the pain of her side, and difficulty of breathing, were worse. Applic. ung. mercur. musculis temporalibus. 10th, P. 100, convulsive motions much better, but still brought on when she speaks,

speaks. Began to spit last night. 12th, All the convulsive motions have gone off since yesterday morning. Spits much. Complains much of the pain in her side, for which the part was blistered. 15th, P. 120. Had a short fit of the convulsive motions, without loss of speech, yesterday, which was the last fit. Pain of side gone. Has purged often, and faeces black, which continued of that colour for three days. She got the powder of tin. 18th, P. 138, her bolus was now given up, and she spat little. Complained of weakness, and pains all over the abdomen, breast, and legs. She got a dose of rhubarb, and after it the bark, as a tonic and antispasmodic. But the fever increased; and, notwithstanding blisters, tart. emet. James's powder, wine, &c. she died on the 29th.

This case affords a strong proof of the antispasmodic powers of mercury, after it begins to affect the mouth, as it carried off all the convulsive symptoms for the remaining fortnight of her life, even though the cause remained, which occasioned them, and afterwards her death. What that was, could hardly be determined during her life. It could alone be ascertained by the following

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ing inspection of the body. The emanfio menfium might be accused ; but I never knew the amenorrhoea produce the trifmus ; much lefs can the emanfio, whose fymptoms are always more mild, produce it. Befides, the trifmus never appears, as I am told, in the Eaft or Weft Indies, without an evident caufe, or external lefion. It comes on here after operations. I faw it after a mortification of the points of the toes, and after a fracture of the bones of the nofe. I knew it occafioned by a fracture of the firft bone of the thumb.

One of the moft frequent feats of local convulfions is the inteftinal canal, as appears from worms, poifons, colica pictonum, &c. Grinding of the teeth, which is a particular fpecies of trifmus clonicus, arifes from an irritation of the inteftines. Befides, we find, in this cafe, an actual pain there. This pain feemed to be the caufe of the convulfions, from the following arguments : 1. The pain preceded, and the convulfions appeared two days afterwards. 2. The convulfions were always proportioned to the pain, and vice verfa ; fo the one was the caufe, and the other the effect. Hence, on the 8th, when the pain of the fide re-
turned

turned with severity, she had a fit of more general convulsions. 3. The pain of the side was evidently connected with the difficulty of breathing, and the convulsive motions of the respiratory organs ; for, on the 11th, the pain of her side was very severe, and a difficulty of breathing followed. 4. The convulsive motions were worse when she walked, which always increased the pain of her side. 5. The convulsive motions went off before the pain. I, therefore, thought it probable, during the progress of the case, that the pain was the original cause and seat of the convulsions. But what occasioned the pain ? That was more difficult to determine. As worms are attended with pains of the abdomen and convulsions, our first business was to inquire what symptoms indicated these ? But I could find no other symptoms to confirm that opinion ; and yet I have seen worms produce very few.

Nothing but ocular demonstration could clear this doubt. On inspecting the body, the small intestines on the left side were much inflamed ; and, where they touched the peritoneum, before the left kidney, they had a mortified appearance. On
laying

laying open the whole intestinal cavity, nothing preternatural was seen in it. The left orifice of the stomach was much inflamed. The lungs also were found inflamed, and adhering to the pleura and diaphragm. The vessels of the brain were much distended. The gangrenous state of the intestina tenuia, in the part where she complained of the pain, appears to have been the cause of her disease. In Lieutaud, Lib. 1. § 346. § 450. we meet with convulsions from the colica pictonum. And in § 426. and 427. we find two cases of convulsions from sphacelated intestines.

EXPER. CXVII. January 13. 1775. Elizabeth Donaldson, 19, regular in the menses, had received a violent compression around the ribs, about three weeks before this, which gave her pain for some time. About eight days before she came in, she began to feel a pain under the middle of the sternum, during inspiration, and when she attempted to swallow. This pain increased; and for the last two days was much worse. It was now attended by a pain between the scapulae, but rather towards the left side, nearly opposite to the pain in her breast. As she described it,

it, the pain was in the course of the oesophagus. It was easier after warm, and worse after cold drink. At first, solid food got only a certain length down the oesophagus, from some obstruction, raised a pain there, and in three minutes came up without vomiting. At length liquids could not pass easily. About three days before she came in, violent headach came on, and frequent convulsive startings of the whole body, of whose attack she had no previous notice. Belly bound, but abdomen not retracted. Tongue white and moist. Urine diminished. Feet always cold. After she came in, she was often affected with globus hystericus, and sense of suffocation. Her pulse was remarkably slow, from 45 to 64, and weak. There often came up, without vomiting, some mucous matter, which she thought was collected about the affected part. She had been bled and vomited before I saw her.

She got aff. foetid. gr. x. and L. L. gtt. x. every other hour; a clyster of aff. foetid. drach. ii. and L. L. gtt. xl. twice a day; and L. L. drach. ii. were rubbed on the parts pained before and behind. 15th, The L. L. in the solution of aff. foetid. was increased;

creased; and a blister was applied to the back, upon the part pained. 16th, P. 60, difficulty of swallowing increased. Oppression about the heart. She was so irritable, that she always fell into violent startings at our visit. She began the aether, and took a tea-spoonful every fourth hour. 17th, The symptoms were still gaining ground, and she could not swallow even drink without great pain. I now had recourse to merc. dulc. gr. vii. h. f. giving up all other medicines. 19th, P. 60, swallows liquids easier, but not solids. No startings. Pain between the scapulae gone, and that under the sternum diminished. Purged once every day. 20th, Purged five times. Deglutition and pain of her breast better. 22d, Mouth and gums sore. Teeth loose, and spits. All the complaints gone, except a small degree of pain when she swallows. 23d, Complaints entirely gone; and the spitting continued for some days.

Hoffman has given us the only description, which I have seen, of this disease, under the name of *Spasmus Gulae*. It is also described under the genus *Dysphagia*, in Hoffman's words, by Sauvages, as he seems never to have seen it. The symp-

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tomatic

tomatic kind happens often in the hysteria ; but such an original and primary disease, as above described, occurs but seldom. I had once seen it before, but it was then seated in the upper part of the oesophagus or pharynx ; and the food went no further. The diagnostic signs of spasm in the lower part of the oesophagus are, “ whatever is swallowed, especially solid food, gets no further than the constricted part, lies there for a little, and is again thrown up ; pain under the sternum, and between the scapulae, towards the left side, which is eased by warm, and increased by cold drink.” Other spasmodic symptoms attend it.

It is owing to a spasmodic contraction of the muscular fibres of the oesophagus. Hence the pain appeared in the situation of that part, was increased by deglutition, and by respiration, as the inflated lungs and the diaphragm must both press against the part. Hence she threw up the food and mucus, without vomiting, by rumination, that is, an inverted motion of the muscular coat of the oesophagus, without the assistance of the stomach. Hence hot liquor eased her, while cold
acted

acted as a stimulus. The globus hyftericus was owing to air arising to the constricted part of the oesophagus, and explains the nature of that symptom in the hysteria. The startings and more general convulsions, which only differed in degree, and arose from the slightest cause, the bound belly, and diminished urine, showed a great irritation or irritability in the whole nervous system. The pulse was remarkably slow, which is common in spasmodic cases. This happens in the tetanus, while the contrary takes place in convulsive diseases. The slowest pulses, with which I have met, have been attended with violent pain. A greater irritation, perhaps, takes off the attention of the mind from the smaller and more constant, arising from the blood in the vascular system.

This disease is easily distinguished from other affections of these parts. From the inflammatory angina, by its fever, thirst, and from inspection. From a palsy of the oesophagus, as the latter has no pain, or any other spasmodic symptoms, and impedes all deglutition, as whatever is swallowed returns by the nose. From a tumour obstructing the oesophagus, by a
 comparison

comparison of the symptoms, as in the following case. A girl, 21, threw up her food unaltered immediately after taking it; and, if it did not come up, an uneasy sensation was produced. She had a gnawing pain at all times in the oesophagus, which was not increased on swallowing, but after the food had remained in it about a minute. She gradually wasted and died, in five months, starved for want of sustenance. When opened, a large hard tumour, two inches along the course of the oesophagus, and of considerable thickness, was discovered, which shut up the passage, and had a carcinomatous appearance. Here the symptoms were different. The spasm of the pharynx, or upper part, is distinguished from dysphagia by an entire want of deglutition, and violent pain when attempted.

She had been bled, and got a vomit, before she came in, without relief. Evacuations, in general, are seldom proper in spasmodic cases, as they increase debility and irritability. Her pulse was always weak after she came in; so there was no indication for bleeding. I should scarcely deem vomits useful in the spasmodic state
of

of the oesophagus. I proceeded directly to aff. foetid. and L. L. two approved antispasmodics, which I had found useful in a similar case. But these medicines, applied in every different shape, a blister, and aether, failed. But merc. dulc. carried off the symptoms in six days, and appears, in this disease, more powerful than the other medicines. It is to be observed, that, tho' the slighter symptoms abated from the 3d day of giving mercury; yet the feverer did not retire till the mouth began to be affected, and a salivation produced.

EXPER. CXVII. James Finlison, Exp. XXVI. in tremor palpitans, got merc. dulc. for ten days, till he spat two pints a day. But was no better.

EXPER. CXIX. Elizabeth Muir, Exp. XXI. in asthma, got merc dulc. gr. v. for seven nights, without affecting her mouth. But she was not better for it.

EXPER. CXX. Thomas Jones, Exp. V. in asthma, got merc. dulc. gr. v. for ten nights, without affecting his mouth. But he was no better.

Dr Cheyne recommends, in the asthma, crude quick-silver; but, if it ever does any
service,

service, it must be from some particles reduced to calx, which often happens. Here merc. dulc. was unsuccessful.

EXPER. CXXI. Ann Cameron, Exp. XXXVIII. in hysteria, got merc. dulc. gr. vii. for eight nights, till her mouth was sore, and she spat a little. The last day the fits were severer than usual ; so it was given up.

EXPER. CXXII. March 14. 1778. George Drummond, 65, a weaver, subject to intermittents, felt a weakness in all the left side, and a pain in the left leg, for some time before the attack of his present disease. Last summer, without any known cause, he was suddenly seized in bed with convulsive motions in all the muscles of the left side, which lasted a short time only, and left the parts cold. These convulsions gradually increased in frequency and severity to the present time. He had, likewise, much flatulency, sighing, depression of spirits, sweating in the affected side, and pains in the breast, shoulders, haunches, and legs. The fits returned then mostly every other day. I shall describe them as seen by us.

He

He feels their approach, and knows it, by a pain in all the left side of his head, a coldness and *creeping*, as he calls it, down the spine to the ancles. At the same time, he feels in his bowels a rumbling noise of wind, which rises to his throat, affects his respiration, and is similar to the globus hystericus. After this, the muscles of the whole left side, and of that alone, are affected with violent, irregular, involuntary, convulsive agitations. The head is turned to the left side. The left eye discharges tears, and is pained. The under jaw is convulsively moved. The left side of the mouth and tongue are dry. Respiration is quick during the fit, and the muscles of the left side of the abdomen are much agitated, and their motions keep pace with respiration. The left arm and leg undergo all different possible convulsive motions, and are cold during the fit. He is sensible of what passes; but cannot speak, nor command the motions during it. The fit continues, in general, for two hours, sometimes for a shorter time. He passes wind, and has a sobbing when it goes off, as in the hysteria. The side is weak, pained, and apt to sweat, for
some

some time afterwards. He has, sometimes, slight convulsions of his legs, without a fit. After he had been in the clinical ward for some weeks, the fits returned generally twice in twenty-four hours, most commonly in the night time, and generally when asleep; sometimes in the morning and evening; rarely between 10 A. M. and 4 P. M. In the interval the pulse is about 60, in the fit it is 96, and soon after it is over, 76. Urine of a straw-colour; and in great quantity, as we found it, for two different days, to be four pints. Never passed worms, nor has any symptoms of them. No acidity of the primae viae. No palpitations, nor more apt to startle than in health. His fits were never observed to follow any passion, or quick motion. No wound or stroke; no cutaneous affection, or haemorrhoids repelled. These are all the circumstances of moment which were observed.

We cannot accuse worms here, as there are no symptoms of them; and, had there been any, the frequent purging with merc. dulc. must have brought some off. We cannot accuse irritation from acidity in the primae viae, as there was none. Was it

a male hysteria? It resembles this last much, in the convulsions of the muscles, globus hystericus, wind and fobbing when the fit is going off, increased quantity and paleness of urine, hot and cold fits, coldness of the extremities, and the paroxysm being brought on by the external application of cold water. It is from such cases, I imagine, that men are thought to be affected with the hysteria. If we consult Hoffman's second case of *Malum Hystericum* in Juvene, we will find fewer hysterical symptoms in it than in this case. I suspect the other male hystericks had no better foundation, as I think the uterus the seat of that disease; and that, therefore, men cannot have it. Yet here I can see many symptoms different. The globus hystericus did not rise from the bottom of the belly; the urine, though increased, was not so pale as in hysteria; surprise and passions did not bring it on; no irritability of mind; no vomiting of acid matter. It answers exactly to the character of the convulsio of Sauvages, and to the 15th species, the hemitotonos, or convulsion of one half of the body.

Where is the seat, and what is the cause of this disease? Hoffman places all con-

F f vulsions

vulsions in the medulla spinalis. He thought, perhaps, that irritation of the brain must produce epilepsy. But we are sure, that, as the muscles of the eyes and face are often affected, the cause of topical palsies must be often in the brain. Why may not, therefore, the seat of topical convulsions be there? The seat of the risus sardonius, and of the trismus clonicus, must be in the brain. As in our patient, the muscles of the face are affected, so far must the cause be situated in the brain. Besides, the first approach of the fit is felt in the brain, before it is felt in the medulla spinalis.

I view it as a slighter epilepsy, where the cause is weaker. Epilepsy proceeds, I imagine, either from an irritating cause, or great irritability of the nerves. So must this disease. There are no marks, in the case, of increased irritability. There must, then, be some irritating cause. I knew an epilepsy which seemed to arise from a pain in the left side of the head, and another from a similar pain in the haunches, in both of which the affected part appeared to be very small. But, what that irritating cause is, will be very difficult to fix. We find

no appearance of either fullness or inaction of the brain. From the dissections of Lieutaud and Morgani, serum is, generally, found on the surface of the brain, so acrid, sometimes, that the dura mater is eroded by it. It is found, too, in the ventricles. That probably was the cause in our patient.

I had no hope from the first of curing this disease, on account of his advanced age, the duration of his disease for nine months, and the increasing frequency and severity of the paroxysms, notwithstanding a great variety of medicines he had taken. Before he came in, he had got *P. cort. Peruv. scrup. ii. flor. zinci gr. ii. every second hour; elix. guaj. vol.; two vomits; aff. foetida; p. cretac. et flor. zinci; L. L. gtt. xx. fpt. fal. ammon. gtt. xxx. which were taken before the fit, without preventing it; P. valerian. fylvestr. scrup. ii. every fourth hour; camphire gr. v. every fourth hour; æther, gtt. l. for a dose; musk, gr. vi. for a dose; pil. cerul. No. ii. h. f. et No. i. mane.*

My only trust was in mercury. I began with *merc. dulc. gr. v. and increased it to gr. viii. morning and evening.* It purged him

him much, and weakened him, so that opium was necessarily added to it, first, gr. i. then gr. ii. to each dose. But no salivation or affection of the mouth could be induced with these great doses, even though ung. merc. drach. i. for many nights was rubbed upon his skin. This plan was continued for fifteen days, without any advantage ; and I was sorry to desist, as I knew none so effectual. Opium, given to gr. iv. a day, a much greater dose than he had taken before, failed too. After this, extr. hyocyam. gr. ii. twice a day, were tried for six days. Its natural poisonous effects were visible ; but it made no change. He got flor. zinci scrup. i. twice a day, without success, for eleven days. He took æther to four tea-spoonfulls, four times a day, drew it in by inspiration, and had it rubbed on his head and spine ; but the fits seemed worse. He kept a seton in his neck for twenty-two days, which drain I thought might be of use, in case any matter was collected within the cranium. But I saw no advantage from it. The cold bath was ordered. But, whenever he put his feet into the tub, he was seized with a fit, without the previous symptoms, which

which showed that it was owing to the immediate action of the cold. I tried again the shower-bath. But, immediately after the shock, he fell into a severer fit than usual, in which the right side was as much affected as the left. A strong proof of the irritating nature of cold water. At this time the clinical ward was given up, and he was, at his own desire, dismissed.

Thus we have seen two remarkable cases cured by mercury, a trismus clonicus, and spasmus gulæ, the latter of which seemed to yield to no other antispasmodic. But it has likewise failed in a tremor palpitans, two asthmas, an hysteria, and hemitonus. Do its effects depend on its general evacuative powers? I cannot think they do, as in the unsuccessful cases it purged much. Do they depend on its salivating powers? There is more reason to say so, as, in my trials, and in those of others, its effects do not take place till the mouth is affected, and the spitting begins. It appears to be the same, when mercury is exhibited, in the rabies canina. Is this owing to the topical evacuation; or to the irritation and inflammation of the mouth and fauces; or to a certain quantity of the mercury

mercury required in the fluids, which must generally be followed with salivation? The two first suppositions are not destitute of probability; because, in most of the present cases, and in those of others, the affection has been in the vicinity of the mouth and fauces, as in the trismus tonicus and clonicus, dysphagia, emprosthotonos, and episthotonos; though we must allow, from the Jamaica relation, that it has cured the tetanus, which attacks the whole body. Besides the general antispasmodic power of mercury, it may act more forcibly in the affections of the neighbouring parts, by a counter-stimulus and evacuation made in their vicinity. If there is any truth in this observation, it points out the diseases in which mercury will succeed most frequently, namely, those near the head, and will more confirm us in making further trials with it in the rabies canina.

CONCLUSION.

It is but a melancholy retrospect to view so many trials made with the most approved antispasmodics, and so few cures performed by any one particular remedy. We
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see that there is no specifick in which we can always trust, but must vary our medicines, as a new one will often succeed, when others have before failed. This uncertainty of antispasmodics depends not, perhaps, so much on the stubborn nature of such diseases, or on the weakness of the remedies, as on the want of accurate experiments, with all their circumstances. This has been a great defect in the materia medica, has stopped the progress of medicine, and kept it in a state of uncertainty; whereas, if the circumstances of the disease, and of the exhibition of the remedy, had been handed down, certain and fixed general principles and rules must, ere this time, have taken place. To supply this defect, and point out the proper line for the improvement of medicine, I have collected the preceding experiments.

Antispasmodics are not all entitled to equal confidence. I know no author, however, who has settled their comparative merit: Each physician is left to judge from his own experience. But, in private practice, he may grow old without facts sufficient. Were I, from the preceding experiments, which are not few,
to

to make a computation of their comparative value, I would arrange them into four classes, according to their powers. In the 1st, I would place the weakest, as fol. aurant. flor. cardam. artemisia, peonia, viscus quercinus, extr. hyocyam. castor, musk, cupr. ammon. electricity. In the 2d, Fear, camphire, flor. zinci, blisters. In the 3d, Aff. foetid. aether, mercury. In the 4th, Bark, opium, bleeding. Every one, in this distribution, will judge as he has experienced. I may alter my opinion on further trials, as it is from these I have formed the present. It is good, however, to have something fixed, as it is easier afterwards to correct than to settle at first such a comparative view.

One of the chief designs of these experiments was to discover the cases and situations in which such medicines might be most successfully used. In this we have not been altogether unsuccessful. We may observe, that most of these, besides their primary antispasmodic quality, possess secondary qualities, which have much influence on their effects and exhibition. Besides some of them possessing laxative or sudorific powers, which others do not, they

they may be distinguished into the stimulant, or inflammatory, and sedative, or anti-inflammatory. Of the former sort, are electricity, mercury, valerian, *assa foetida*, *cortex Peruvianus*, opium, &c. Of the latter, are bleeding, epispastics, musk, camphire, castor, aether, *flor. cardaminis*, *fol. aurantiorum*, *cupr. ammoniacale*, *flor. zinci*, &c. The former must be chiefly useful in the debile anti-inflammatory states; the latter, in the febrile and inflammatory. The preceding experiments have confirmed this; and bleeding has been found one of the most powerful anti-hysterics, when the state was inflammatory.

But particular antispasmodics are suited to cure particular spasmodic diseases, from some other circumstances, independent of these just now mentioned. These experiments have shown me the fact; but they have not discovered the cause or principles on which it depends. *Æther* will relieve one spasmodic disease and not another, though both inflammatory, or both anti-inflammatory. *Flor. zinci* will cure an epilepsy, though not a convulsio. Opium will ease an asthma, though not a convulsio. Mercury will cure a trismus,

or spasmus gulæ, though not an hysteria, convulsio, or asthma. We have hinted at the principle in mercury, though we own it is but an opinion. In the other antispasmodics, I can form no idea that satisfies me. As the operation of such bodies is exerted on the nervous system, of which we know so little, we may never, perhaps, be able to fix the cause. We may, however, by a multiplicity of experiments, be able to fix the fact, and the diseases and circumstances to which particular antispasmodics are best adapted, which would be of essential service to the practice of medicine.

S E C T. XII.

Experiments upon some Antiparalytic Remedies.

The paralysis appears, at present, very frequently in the clinical ward, and for the same reason, perhaps, that the typhus does. Like it, the paralysis seems to affect mostly those in the vigour of life, as there is not one of all the patients, whom I have had there, who has exceeded the age of 50.

That

That it is, sometimes, a mere nervous affection, cannot be doubted, since it is observed to be produced and cured by passions; since it is seen to arise from the external and internal use of lead, and other narcotic poisons; since the optic nerve is found often free from compression in the amaurosis; and since, frequently, no evident cause of the disease can be discovered by dissection, as appears from authors, and in one of the following cases. But that it often does arise likewise from actual compression, and, as Morgagni has discovered, in the side opposite to that in which the affection is placed, we had a proof.

May 8. 1769, Elizabeth Frazer, 36, had been, during a month, affected with vomiting, and on the 3d of May, was seized with loss of motion, and imperfect sensation in all the right side. The right hand and leg were swelled. Her speech very indistinct. Pain in the right side of her head. Belly bound. Her pulse weak, irregular, and intermittent. She complained of pains in her belly, picked her nose, and grinded her teeth. In the last days, the left angle of her mouth was convulsed, and the palpebrae of the left eye more shut, which

were

were the only affections of the left side which we observed. Notwithstanding repeated blisters and phytic, mustard and mustard-whey, cupping, errhines, stimulants, &c. she died on the 19th. When opened, no fluid was found on the surface of the brain; but the vessels seemed turgid. The liquor in the ventricles did not much exceed the natural quantity. Above two ounces of bloody purulent liquor were found on the surface of the medulla oblongata, on the left side; and more of it was seen on the surface of the medulla spinalis. The right cavity of the thorax was full of a bloody liquor, about four pints in quantity; and the lungs, on that side, were livid and schirrous in one part. The pleura was red, and covered in many parts with mucus. About a pint of fluid was found in the abdomen. The stomach had a livid spot upon it, about the size of a shilling.

As the palsy frequently arises from some such fixed compressing cause, which is discovered in most of Morgagni's dissections, no wonder that we so often fail in the cure. Whatever, therefore, is found to cure this disease, in certain particular circumstances, deserves our attention.

VENÆSECTIO.

V E N Æ S E C T I O.

Bleeding, though recommended by practical authors, is seldom, in the cases I have seen, admissible. But, in certain circumstances, which, indeed, occur but rarely, it makes the principal part of the cure.

EXPER. I. July 4. 1770. John Anderson, 47, was seized, about six weeks before this, with shivering, followed by heat, thirst, sweat, and pain of his back. The pain fixed, after eight days, in all the joints of his inferior extremities, which, in 12 hours, swelled, became red, and immovable. In 14 days, the pain and swelling left the inferior extremities; and, at the same time, he was seized with pain, coldness, and loss of feeling in the whole left side, vertigo, and difficult deglutition; so that, when he now attempts to swallow, the food returns by his nose. His P. is 116, strong, and irregular. Thirst, and white tongue. The upper palpebra of the left eye falls down; and he does not see well with that eye. He has lost the feeling, in a great degree, and the motion considerably, of the whole left side, except in the neck, which he says is much pained.

ed. The right side is in a natural state, except a slight degree of insensibility in the leg, and a pain in the shoulder. Cough, with expectoration. Belly bound. Appetite good.

This curious case appeared to have been, at first, a rheumatic fever, from the pains, swelling, and redness of the joints. In some days, these swellings suddenly disappeared, and he was attacked with a hemiplegia of the whole left side of the head, trunk, and extremities. The pharynx, and the oesophagus, perhaps, from its lying mostly on that side, were also affected. This was plainly a translation of the cause, or at least a change of the seat of the disease, from the joints to the nervous system. But, as the alteration was so sudden; as the pulse had still the rheumatic strength, I considered the nature of the disease as unchanged, and that the cure was to be conducted in the hemiplegia, as in the acute rheumatism, by bleeding. So strong was this impressed on me, from a consideration of the whole symptoms, that my plan was not altered by his telling me that he had been bled twice in the beginning of his rheumatism, and thought himself worse after it,

it. I was resolved to try bleeding alone. He was bled, in seven days, four times; after each of which the symptoms gradually diminished. His blood was always fizy. Nothing else, during this time, was done, except giving him a little nitre, and keeping his belly open by clysters. At the end of this time, all his symptoms, except a headach, had gone off. This case is equally decisive with regard to the utility of bleeding, as it is singular in its origin, and the inflammatory nature of its symptoms. There is no reason to think there was any external compression here. If any, it must have been from a plethoric state of the vessels within the cranium. It appears more probable that the cause was situated altogether within the nervous system, perhaps within the brain and medulla oblongata.

DORONICUM GERMANICUM OFF.

It is the *Arnica Montana* Lin. or Leopard's bane. It seems to be much used in paralytic cases, at present, in Vienna, as appears from the writings of Eisenbach, of Reichter, and especially of Collins, who published

published an account of some cafes, where it was fuccefsfully given in the year 1773. They ufed a handful of the leaves, or from drach. i. to unc. fs. of the flowers, infused in water, each day. This medicine appeared, from their experiments, to be poffeffed of ftrong powers, efpecially in curing the hemiplegia. As it was not to be got here in the fhops, I found it difficult to procure a fufficient quantity for the following experiments.

EXPER. II. November 30. 1776. Elizabeth Liddle, 37, for many years fubject to vertigo, was feized about a month ago with a deep feated pain above the right eye, which lafted eight days, and was fucceeded by dimnefs of fight. About the 16th of October, fhe was affected with a hemiplegia of the whole right fide. The left thigh and leg are a little affected. The pulse is fcarcely to be felt in the affected fide, and is from 84 to 90, foft and weak. Her tongue is rather lefs paralytick than formerly. The fecretion in the noftrils is much diminifhed. She complains of faintnefs and vertigo, efpecially on ftooping. This patient got a variety of medicines, affa foetida, errhines, feton, electricity, mercury, fo

as to produce flight salivation, decoction of guajac, and was easier, though far from being cured. January 29th. R. Fol. doron. Germ. drach. i. aq. bullient. lib. i. f. inf. per tres horas, et cola. Cap. unc. iv. quater in die. It always produced a giddiness, for half an hour, after she took it, and two loose stools a day. The muscles of her extremities started often, which they had not done before. Half a drachm was added to the former quantity, without any alteration in its effects; but, on using two drachms, it produced more sickness and purging. February 6th, the muscles of her legs are much affected with slight convulsive motions, and with violent starting. 10th, Dismissed cured.

EXPER. III. February 6. 1778. Katharine Aiken, 42, was seized, about two months ago, with a hemiplegia of the left side, which has lost all motion, excepting a little of the leg. All that side is attacked with an oedematous swelling. What is more particular, the affected parts still retain their feeling, and the joints are even seized with violent pains, especially in the night-time, and while in bed. Her pulse is 74, and weak. These pains seemed to

H h have

have some connection with the rheumatism ; but, in the progress of the disease, they disappeared, and it turned out a pure hemiplegia. 9th, She got the doron. Germ. as before prescribed. It produced nausea, two or three loose stools a day, and much starting of the muscles of the affected parts. 12th, Half a drachm more of the leaves was added. Her head sweated much, she felt more sickness, and thought there was some more motion of the leg. 15th, We could not continue the experiment, as the medicine was exhausted. Three weeks after, she began to complain of great weakness and dyspnoea, her pulse quickened, a broad flat livid eruption appeared on her legs, and some parts of her body, and she died on the 20th of March.

On inspecting the cranium, nothing preternatural could be observed, except a plethoric state of the vessels of the brain, and a more than ordinary quantity of water in the ventricles. The consistence of the cortical and medullary part was similar and natural in both hemispheres, as likewise in the medulla oblongata. Nothing remarkable in the thorax or abdomen. Here no laves could be discovered, to which the
palsy

palsy might be attributed; so that we must ascribe it to an affection of the nervous system.

EXPER. IV. February 10. Elizabeth Ramsay, 33, was affected, for six months, with palsy of her lower extremities, which had been preceded, about three years ago, by rheumatic complaints in them. As the parts were diminished in size, and as she had a protrusion in some of the dorsal vertebrae, success was not to be expected from any medicine. Though she had a gentle purging, I gave her the inf. doron. It produced no sensible effects, and the purging was rather less. The medicine was stopped, after six days use, from a deficiency of it.

EXPER. V. December 11. 1778. John Calder, 50, has a defect of sensation and motion in both hands. He got first drach. i. and at last drach. iii. infused in a pint of water. It excited pains in his belly, and some loose stools. But, after fourteen days, he was no better.

EXPER. VI. December 23d. John Walker, 31, was seized with a hemiplegia of his left side, after a fever, about a month ago. He began with drach. ii. in infusion. It produced

produced no sensible effects, excepting more heat in the affected side. The infusion was at last made with drach. iii. and it was continued for ten days. But it seemed not to do much service.

EXPER. VII. December 26. Nelly Cochran, 15, has had a paralysis of both arms for three years. The infusion was made with drach. i. at first, and then with drach. ii. It produced nausea, and her arms felt warmer. She used it for several days without advantage.

We cannot, from these experiments, judge very favourably of the success of this medicine. We must leave it to future trials, before we can subscribe to the effects, as narrated from Vienna. We can only say, that, from the stimulus in the primæ viæ, and on the affected muscles, it seems to give hopes that it will be of some service; but which our trials have not yet ascertained.

CUTIS CÆSA URTICIS.

It was common among the antients to beat the paralytic part with nettles, in order to restore its sensibility and motion.

EXPER.

EXPER. VIII. June 22. 1770. Thomas Main, 30, has been affected, for three years, with a palsy of the lower extremities. *Caede partes affectas urticis, donec summa cutis exasperetur.* They were applied to the whole leg, and above the knee, and they produced a burning heat, and severe pain. Two days after, they were applied a second time, for five minutes. But this remedy was attended with no advantage. They seem well adapted, however, to produce a topical fever.

BALNEUM CALIDUM.

The hot bath is thought useful in the palsy, as many natural hot baths are found to be powerful remedies in this disease. But these may operate from mephitic air, and other impregnations, which common water has not. Hot baths are, certainly, stimulating, if they much exceed the heat of the human body; but then the stimulus is not long applied. They increase, indeed, the sensibility and irritability of the nerves; but they, at the same time, increase the debility and laxity of all the fibres.

EXPER.

EXPER. IX. Katharine Aikin, Exper. III. used the hot bath for more than three weeks, heated to as great a degree as she could bear, without the least success.

EXPER. X. Elizabeth Ramsay, Exper. IV. used it for several days, without any advantage.

EXPER. XI. April 11. 1778. Sarah Wood, 32, has been affected, for some time, with a hemiplegia of the left side, and severe pains in the right, headach, depression of spirits, little sleep, and thirst at times. P. 72. Used the bath very hot for eight days, and thought she had more feeling, though not more motion, in the affected side. She was afterwards seized with a fever, and cured by it.

These trials with the hot bath, in paralytic cases, have been very unsuccessful.

SECTION. XII.

Experiments upon the effects of Oleum Terebinthinae in the Sciatica.

The sciatic frequently appears in the clinical ward. It is classed, by practical
authors

authors and nosologists, as a species of rheumatism, but perhaps upon too slight grounds. There has been little written by the moderns on the nature and cure of this disease that can satisfy an inquirer. Du Haen has a chapter upon it; but he has done no more than collect the scattered methods of cure to be found in Hippocrates, without adding any thing new, which can never improve medicine. Domini-ci Cottunni has written a small treatise on it; but his opinion is little better than an hypothesis. There are few dissections in this disease to assist us.

Having, many years ago, met, in one of Dr Cheyne's Philosophico-Medical Works, with a receipt, composed of ol. tereb. and honey, as a cure for this disease, I tried it, and found it to succeed. I have since used it for many years, as an efficacious and valuable medicine. Many were cured with it before I entered into the clinical ward; so that it has not the merit of fixing the value, but of confirming yet more the good effects of this remedy. As they are not generally known to others, except from the experiments which have been made here, I shall narrate the facts.

EXPER. I. June 8. 1769. Agnes M'Kay, 39, was seized, three weeks ago, with a violent pain in the articulation of the os femoris, which neither stretches upwards nor downwards. R. Ol. tereb. drach. ii. mell. opt. unc. i. M. f. linct. cap. coch. parv. mane et vesp. superbibendo haust. potus communis tepidi. 10th, Sweats after the medicine. Pain easier, and it seems to stretch down the thigh. 11th, The pain has left the articulation of the femur altogether; but has fixed in the posterior parts of the thigh. 13th, Though the pain was much easier, yet a blister was applied. It went off.

EXPER. II. May 19. 1770. George Temple, 62, has, for three years complained of pain, which stretches down from the articulation of the os femoris along the outside of the thigh to the feet; and has much increased during these three months. It affects sometimes one leg, and sometimes both, and is worst when he is in bed. He has had a similar pain in both arms, for three months, from the shoulder downwards; but mostly in the right shoulder. Thirst, and tongue foul, and white. Feels, at times, a pain across his back and loins.

P. 72. R. Ol. tereb. &c. 23d, Walks better. Pains of his thighs easier, but those of his arms the same. Feels a peculiar sensation of heat after every dose of his linctus, along the right thigh and leg, which he never felt before. 28th, Sweated much last night. Pain of thigh much easier. 30th, Pain of the thigh gone; that of his shoulder no better. A blister was applied to the latter, and it was removed. So that the ol. tereb. cured the pain of the thigh, but not that of the shoulder.

EXPER. III. Feb. 13. 1774. Margaret Tyrie, 56, has complained for fifteen weeks of great pain in the right haunch, thigh-joint, thigh, leg, and ankle. This pain was at first constant; but has abated for three weeks, and has only attacked her irregularly. Of late, that leg has been affected with coldness, frequent tremor, loss of motion and sensation; and is now wasted, and semiparalytic. But the disease differs from the true palsy, as the part is often affected with severe pain. Some of the flexors are contracted, so that she cannot extend that leg. P. about 90, and rather weak. This case was incurable. She had had two blisters applied, at different

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times,

times, to the thigh ; had taken some purgatives and sudorifics, and had been electrified ; but without any success. To try the utmost power of this medicine, it was ordered. By mistake she took the whole quantity in three doses. It produced a violent strangury, from its stimulus on the neck of the bladder. 17th, P. 78, pains of the thigh almost gone ; and she can stretch out her legs. 22d, Much more motion than when she came in. No more success could be expected from it.

EXPER. IV. Dec. 23. 1774. Christian Stewart, 60, about six weeks ago, was seized with frequent severe cough, and much expectoration of yellowish matter. About eight days ago, she was attacked with violent pain in the left thigh joint and hip, increased on motion and by the heat of the bed. The pain extends down the thigh and leg to the foot. As the cough continued very severe, and remained after these pains were eased, they did not appear to arise from any critical deposition. She got the ol. tereb. &c. It proved diuretic. Next day, she was easier. 3d, Pains of the thigh much easier, and she walks better. 4th, A pain and swelling seized the

the left thumb last night. Whether this had any connection with the sciatic, may be doubted, as the pain of the thigh was no easier than the natural progress of the cure occasioned. 6th, Sciatic pains gone, except a little in the ankle.

EXPER. V. Feb. 17. 1776. Donald M'Donald, 44, complains of a pain in the left haunch, which shoots down the back part of the thigh to the knee and foot, and renders him unable to walk. The pain is worse before rain or snow. It is sometimes severest in the day-time, and at other times during the night. The pain is not very great, except during motion. None of the affected parts are discoloured or swelled. The affected leg seems wasted and cold, which was not known till after he came in; for, if it had, I should have despaired of any success. P. 80. He had been blistered, had used the hot bath, had got dec. fenekae, gum. guajac. and opium, in vain. He got the linctus, which took away his appetite, but did not prove diuretic. 18th, Pain easier, and he is able to walk. 23d, Sciatic pain gone. The other pains in the knee and ankle were still uneasy, to which
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we were obliged to apply external remedies

EXPER. VI. March 30. 1778. David Reid, 61, a porter, had been admitted for a lientery, and cured. He afterwards complained of a sciatic pain, which was of seven years standing, and gave him much uneasiness when he mounted a stair. On the 11th of April, he got the linctus. 14th, Pain of the thigh and legs gone, and can walk up stairs without pain.

EXPER. VII. April 2. John Chalmers, 71, butcher, complains of severe pains affecting him from the hip to the knee, on the right side. The pain is always easiest in bed, is much relieved by warmth, and increased by damp weather. The affected leg is very weak, and cannot support him in walking. P. 90, and of natural strength. Got the linctus. 5th, It produces a heat in the stomach, moisture over all the body, and in the affected leg, and increased his urine. Pains easier. 9th, Pain in the thigh much diminished, but that of his knee still severe. A blister was applied to the knee. 16th, All pains gone.

These are all the cases of pure sciatica to be found in my report-books, for seven years,

years, in which this medicine was given. There are some others, complicated with the lumbago, which will afterwards appear under that disease. But I have cured a great number of patients, in private practice, during the many years I have used it. The following conclusions naturally arise from the preceding experiments.

1. Of the seven patients, five of them are men, and only two women. Hence men appear more subjected to this disease than women. I have always found this to be the case. Men are more subject to the external causes which bring it on, as cold, sleeping on the wet or cold ground, external force, and injuries, much venery, &c. Hippocrates mentions it as arising from a suppression of the menses in the wife of Palimarchus; but I do not remember to have met with this cause. The following observation will contribute to prevent this often happening.

2. Our patients were mostly far advanced in life, four of them past 60, one near it, one 44, the youngest 39. All my other patients were of advanced years. I do not recollect ever seeing one in this disease in the vigour of life.

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3. This disease is generally classed along with the rheumatism, from a similitude of pain, which in both is increased by the heat of the bed, and in the night-time, though that does not always happen, as in Exp. V. and VII. How far this opinion, of its being rheumatic, is true, may admit of much doubt, from the following reasons: 1. Men seem more subject to sciatic; women, to the rheumatism. Of 18 patients, which I have had in the acute rheumatism, in the clinical ward, 14 were women; so that women are attacked with the rheumatism oftener than men, in the proportion of 3 1-half to 1. 2. This disease generally seizes those of advanced years. But, in the acute rheumatism, it is the reverse. Of 15 cases in which the age is marked, 12 happened before 30 years of age, and the 3 others between that and 36. This is a material distinction, arising from our cases; nor does this disease seem to attack those most subject to rheumatism. 3. The symptoms of the two diseases differ in many points. In the sciatic, the pains are more fixed, and do not flit, as in the rheumatism. In one case, it remained in the part for seven years. In the former, the whole

whole extremity is affected from the haunch, or thigh-joint, to the toes ; in the latter, it is not so. The latter has an inflammatory fever, and fizy blood ; the former, has not. The latter has generally a crisis by urine, though the disease is tedious ; the former has none. 4. They differ in the cure. The sudorific method has not such effect in the sciatic, as in the rheumatism. The ol. tereb. has not the same success in the rheumatism, as in the sciatic. In Exper. II. it removed the pain of the thigh, but had no effect on that of the shoulder. In Exper. IV. V. VII. after the sciatic was cured, we still find the rheumatic pains in the knees and ancles remaining, to which we were obliged to apply other medicines. These considerations show a sufficient distinction betwixt the two diseases.

4. From the preceding cases, I am inclinable to place the seat of this disease in the sciatic nerve. The thigh joint is certainly attacked with rheumatic pains, as other articulations, though, perhaps, not so often ; as the ligaments which surround it are less subject to the pressure of the whole body, and of the neighbouring parts, than those
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of the other joints. The ligamentum orbiculare, within it, must be likewise attacked. Morgagni has two cases where this joint was much affected, the ligamentum orbiculare flaccid, the mucous glands swelled, and the cartilages red or eroded. Perhaps the muscles may be affected too, as there is a case in Bonetus, from a suppuration of the rotator muscle. But I would consider these as pure rheumatisms. The sciatic nerve was, amongst the ancients, looked on as the seat of this disease; hence it was called morbus ischiaticus. The following considerations support this opinion: 1. It is generally complicated, more or less, with lumbago pains, as the present cases show, and the following under lumbago prove yet more; or, at least, it begins in the loins. It is from the lumbar, &c. nerves, that the sciatic is composed. Hence pain is often felt there. 2. The pain follows the course of the sciatic nerve. The pain is felt about the thigh joint, as the nerve passes behind the great trochanter. It is felt, generally, in the back part of the thigh, ham, calf of the leg, to the foot, which is precisely the course of the nerve. 3. The patient loses the

the sensation of that extremity, feels an inability to move its muscles, and labours under a claudication and paralytic state, as in many of the cases, which show a nervous affection. 4. The member, at length, is wasted, as in the palsy, which happened in Exper. III. and V.

But the precise cause of this sciatic affection is dubious. D. Cottunni thinks that it is owing to a hydropic state, betwixt the nerve and its coat. He even builds, upon this idea, his method of cure, viz. to perforate, by means of the knife or caustic, to the hydropic coat, and lay it open. But we must consider this opinion as ideal; for he supports it with no decisive arguments, and with one dissection only, which is allowed by himself to be inconclusive. It is even contrary to appearances; as this disease would more frequently attend dropsies; as our cases were not complicated with dropsy; as, in one case, the pain shifted alternately from one leg to the other; and as the disease was so soon cured. Is it owing to a determination of fluids, perhaps of an acrid nature, to the vessels of that great nerve? This is probable, from the degree of fever and feverish symptoms which at-

tend it; from its being often owing to critical depositions; and from evacuants and discutients removing it.

5. The cure of this disease has been attempted by external and internal remedies. The ancients used hot and acrid cataplasms of wine, salt, &c. and friction with hot oils. Hippocrates recommends the cucurbitulae cum ferro, and the actual cautery to produce ulcers, which were to be kept open for a length of time. Though these may prove successful, yet blisters have superseded them. But even blisters are often of no use, as in Exp. III. and V. The hot bath is frequently applied. I often use friction with the flesh-brush successfully; although Cottunni is afraid that it will bring a fluxion to the part. But it always determines to the skin, increases the perspiration, and frees the more internal parts.

The internal remedies are venesection, purging, and sweating. Hippocrates recommended all these. If the pulse is strong, bleeding is necessary. But, as this disease generally attacks the old and debile, venesection has but seldom been ordered. March 11. 1778. Helen Wilson, 40, convalescent, caught cold, and was seized

seized with the sciatic, two or three weeks before she came in. She was bled, and she recovered without any other medicine. Hippocrates used purging and acrid clysters much. I have tried purgatives in vain. His success might have been owing to the more acrid purgatives then in use. These will not only evacuate, but irritate the rectum; and so relieve the affections of the neighbouring parts. De Haen has endeavoured to trace a communication betwixt the vessels and nerves of the rectum and sciatic nerve. But whether this has any effect is difficult to say. Sudorifics have been used. But some of our patients had tried them without success. Some more effectual remedy, therefore, was necessary.

The ol. tereb. given in the method prescribed by Dr Cheyne, with a draught of sack whey, or warm drink after it, appears to be a most powerful medicine. Of the seven cases, it cured five, and relieved two, which latter could not admit of a cure, as the parts were emaciated. Of these cured, the disease was of three years standing in Exper. II. and of seven years in Exp. VI. It is not to be

be expected, that any medicine will operate more powerfully than this does.

6. Its sensible operation is various. It often produces a heat in the stomach, and diminishes the appetite. It heats the part, and raises a peculiar sensation of pain there. It proved diuretic in Exp. IV. and VII.; and, when used in too great quantity, it brought on a strangury, as in Exp. III. It was followed by moisture in Exp. I. II. VII. It sometimes performed the cure in four days, as in Exp. VI. where the patient had been under the disease for seven years; but the preceding diarrhoea had, perhaps, made it more curable. It sometimes requires fourteen days.

7. It is difficult to explain its operation. Does it act by stimulating and heating? Other stimulants have not the same effects. Does it operate by diuresis? Other diuretics do not cure this disease, and it often cures without an increased discharge of urine. Does it operate by sweating? Other sudorifics do not cure; and it often has no such effect. It is, perhaps, impossible to explain its operation, as we do not know how the nerve is affected; nay, we are not sure, though it appears probable, that the
nerve

nerve is the seat of the disease. I am inclined to think that its operation is topical, from the peculiar sensation of heat, and pain felt in the part, after each dose, as in some of the cases.

S E C T. XIV.

Experiments upon the effects of a liniment in the Lumbago.

We are yet more at a loss in the pathology and cure of the lumbago, than of the sciatic, as the former rarely occurs, as no dissection of it has been recorded with which I am acquainted, and as no author, Sydenham excepted, has treated of it. It is a disease, however, of the most painful kind, and of difficult cure in the common methods employed. It is described in the Medical Facts, as I had once an opportunity of seeing it epidemic amongst the British troops in Ghent. An external application is there mentioned, which succeeded, in that constitution; and several physicians have since used that remedy with advantage. I shall describe the cases in

in which I have lately applied it in the clinical ward.

EXPER. I. Feb. 21. 1774. Donald M'Donald, 29, after sleeping in a damp cellar, was affected with pains in his loins, which stretched down both the thighs and legs to the toes. He is obliged to retain his body in a curve posture, as he had much pain in endeavouring to raise and keep it erect. After these symptoms had continued for some time, his urine and faeces were passed involuntarily, and his legs became paralytic. R. Camph. scrup. i. dissolut. in ol. tereb. drach. ii. S. C. C. gr. xv. P. sem. cumin. drach. ii. dein add. ung. nervin. unc. fs. sapon. nigr. com. unc. i. M. f. linim. extende super alutam et applic. lumbis. 25th, Pains of his loins easier. Those of his limbs the same. Rep. linim. March 3d, can raise his body to an erect posture, and keep it in that situation without pain. He was afterwards seized with a mortification of the nates, either from lying on them, or from a paralytic disposition.

EXPER. II. March 6. George Brown, 32, after exposure to cold, complains of pains which strike across his loins, but mostly to the left side, and are worst in
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the morning, and while warm in bed. Walks with difficulty, and cannot lie on either side. Urine high coloured. Sleeps little. P. 70. The liniment was applied. 7th, Pains of the back easier. 9th, Pains of the back and thigh gone.

EXPER. III. Dec. 20. 1776. John Boys, 37, sailor, after exposure to cold, has been for some months affected with pain in his loins, which affects the thigh-joint, and goes down the legs to the feet. He had the liniment applied, and was relieved by it, but not quite cured. His loins were blistered; but the pain was not removed by it. The part was afterwards burnt, according to Peautau's method, in two places, an inch on each side of the spine, and the ulcer kept running for some time; but it did not cure him. He afterwards got mercury, but with no better success.

EXPER. IV. April 16. 1778. Donald M'Arter, 50, about a month ago, without any visible cause, was seized with severe pains in his loins and haunches, stretching down his thighs, especially on the right side. He could not raise his body erect, unless with much pain. Heat and thirst. His pains were easier with the warmth of
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the bed. When he came in, the symptoms were not so severe as they had been. P. 80. He had taken salts, and applied oil of turpentine to the part, without relief. The liniment was ordered to the loins; but by mistake it was applied to the thigh. 19th, Pain of the thigh easier, but that of his back the same. It was applied to the loins. 23d, Pain of the back much easier; that of the thigh gone. 26th, Dismissed cured.

From the above experiments, the following conclusions arise :

1. That the lumbago is very much allied to the sciatic. In all the four cases, the pains stretched down the thigh, as in the sciatic. In three of the four, they reached to the toes. Hence arises a conclusion, that both diseases are affections of similar parts, and have their seat in the numerous nerves, lumbar, &c. which go to constitute the great sciatic nerve. The distinction between the two is merely local. I endeavoured, many years ago, to show, that the lumbago is not situated in the kidneys and ureters, as Sydenham thought; and the preceding cases still confirm me the more in this opinion. The pain does not follow
the

the course of the ureters ; it is not increased by external pressure ; it is but little felt, except in an erect posture ; there is no vomiting ; and the urine is not changed in quantity or quality. I then thought that this disease was a species of the rheumatism, affecting the psoas and musculus transversalis, and the ligaments of the lumbar vertebrae, as the pains excited on extending the vertebrae, and those of the knees and ancles seemed to show its analogy to other rheumatisms. But it appears now more probable, that the seat of the lumbago is in the lumbar nerves ; as it is so often complicated with the sciatic ; as the pain goes down the thigh to the toes ; and, as it affects the bladder, rectum, and legs, with paralysis, which parts are supplied by these nerves.

2. This disease seems not to require subjects for its attack, so far advanced in life, as the sciatic does. But still it does not seize the young and vigorous ; as, of the preceding patients, two are about 30, one 37, and one past 50. The others which I have seen were all older ; so that there seems to be no great difference betwixt these two diseases in this point. In this it differs, too, from the rheumatism.

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3. These

3. These patients are all men. In this, likewise, it agrees with the sciatic. In this, too, it differs from the rheumatism. That part in men, betwixt the vest and breeches, especially when the latter descend, is very accessible to cold.

4. When the result of my former practice, in this disease, was published, it was observed, that repeated bleedings, as directed by Sydenham, were not found so very useful. It is sometimes inflammatory, in which case bleeding must be performed. But it has oftener been found not requisite, as in all the preceding cases. With regard to purgatives, the salts were of no use in Exper. IV. I have often seen purgatives bring back the pains, when they seemed to be going off. Blisters did not cure it when epidemic. In Exper. IV. they were applied in vain. From the bad success of Sydenham's method, I was led to try the above topical application, which succeeded. We find, that, in the four preceding cases, in which it was applied, it cured two, and relieved the other two, one of which could admit of no more than ease from pain, as the parts had become paralytic, and a mortification came on.

5. It

5. It produced its salutary effects in a short time, from four to eight days. The liniment was always renewed, every three days, as it turns hard and crumbles.

6. It appears to act topically, as asserted formerly in the Medical Facts; because, when it was at that time applied to the knees, the lumbago was no better. The same trial was again repeated in Exper. IV. by accident, when it was applied to the pain in the thigh, without any success. It probably acts by stimulating the nerves of the part, by which a topical fever is induced. The salutary effects of this cause on the system appear every day. In this way, the cure of the sciatic was performed by nature, in the following case.

Feb. 18. 1776. John Donaldson, 43, was affected with the sciatic 16 years ago, and with an ague last autumn, in Lincolnshire. He had lately a return of the ague, at which time he was seized with pains in his loins, haunches, and thigh-joint, which still continue. Skin moist. Belly bound. Tongue white and dry, and urine in small quantity. P. 86. He got a purgative. After its operation, he was again seized with the ague, the day he took the physic. The

The paroxysm was long, and the sweating profuse, after which his lumbago pains became easier. He had a second fit, and the pains were still diminished. He had a third fit, after which he felt no more pain. This lumbago probably arose from a critical deposition in the former fever, and a new fever cured it. By the quickened action of the heart and arteries, especially those of the part, the cause was removed. As this effect was expected, the fits were not stopped.

S E C T. XV.

Ischuria Renalis.

Morgagni appears to be the first who properly distinguished the ischuria into its four different genera, Renalis, Ureterica, Vesicalis, and Urethralis, as the seat of the disease may be in each of these different parts. Cases where the kidneys or ureters alone are affected, are rare; for, when one kidney or ureter is diseased, the other will supply its function. These two parts are double, whereas the other two are single. Morgagni says, that neither he
nor

nor Valsalva ever inspected the body of any who had died of the ischuria renalis. A mortal case of this disease, with the dissection, which is so rare, must therefore merit our attention.

HISTORY I. January 16. 1775. Robert Muir, 35, a coachman, of a full habit, was seized with shivering, coldness, and severe cough, about three weeks ago. In three days his urine appeared high coloured, was passed with pain, and in less quantity. About the 8th day, he was attacked with violent pains in the small of his back, over the whole abdomen, and in the ancles. He felt, too, a pain in the region of the liver, especially when it was pressed. He observed, afterwards, a general swelling over the whole body; but mostly in the ancles and abdomen, which last was tense and hard. These were attended with vomiting, bad appetite, and considerable thirst.

When he entered into the clinical ward, the cough, sickness, and vomiting had gone off; but the dysuria remained. As his urine was always passed with his stools, I saw it but once, and then it was pale, and had a white powder at the bottom.

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The pains and swellings, which retain the impression of the finger, continued; and the scrotum and penis are now swelled. Headach. Tongue white, and generally dry. Belly natural. No sweat. P. 48.

The next day, which was the 22d of his disease, before he took any medicine, he was seized with a natural purging, which continued through the whole disease, along with the suppression of urine, of which he never passed above a gill, often only half that quantity, through the day. 25th, He complained of severe pain about the kidneys. 26th, Drowsiness and coma began to appear. 27th, P. 72, vomiting returned. 28th, P. 66, and for the first time strong. Vomits frequently. Doses much. Belly open. Pain about the kidneys easier. Frequent starting, which continued through the disease. 29th, P. 80, and, although he had been bled, still strong. Vomited often, and started much. The swellings of his legs, scrotum, penis, and abdomen much fallen. 30th, These still more diminished. Greater insensibility and hiccup. No vomiting. Looseness and drought. 31st, P. 82, and still

still strong. Sweated much this morning. No deglutition. Died in the evening.

The kidneys were found of an irregular form, some watery vesicles appeared on their surface, containing black gritty particles like fine sand, and the lower part of the right kidney was considerably inflamed. The pylorus, part of the duodenum, and a considerable part of the small intestines, were much inflamed. In the abdomen were found about five pounds of fluid, and in the cavities of the thorax about 1-half pound. The lungs were a little inflamed, and full of small tubercles on their surface, and in their substance. The heart was large, and a polypus in each ventricle. About six oz. of fluid were found in the pericardium. Nothing appeared preternatural in the brain, except about an ounce of water in each ventricle.

This ischuria had its seat in the kidney, as there was no swelling in the inferior part of the abdomen, as he had no sollicitation to pass urine, as the catheter, when introduced, discovered none in the bladder, and as the inspection of the body showed that none had been secreted.

What

What was the immediate cause of this renal affection? The calculus is a general cause; but none was discovered. Are we to accuse inflammation, as a little appeared in one kidney? I hardly deem that the cause, as then it would have been attended with violent pain, fever, and other symptoms of nephritis. Besides, the other kidney, where none was found, would have supplied its defect. Hence, the cause scarcely appears to be topical, as the probability, in that case, would have been, that one only should have been affected.

Was it owing to any acrid matter? This seems sometimes to occasion it, as the urine is often diminished in the crisis of fevers, when its acrimony appears from the heat and pain it excites, and as Morgagni, in his ch. 41. *De Urinae Suppressione*, mentions a repelled cutaneous eruption as the cause. It does not seem owing to any quantity of mucus blocking up the tubuli uriniferi, which sometimes may happen, for none was seen.

It was probably owing to an arthritic cause, as, 1. We were informed, after his death, that he had laboured, for many years, under the gout; that he had five fits
during

during these two last years, that he had it last May, and that his present complaints came on like the fit of the gout. 2. As it alternates with nephritic complaints. This is Hoffman's opinion; and Sydenham says, that it produces calculi in the kidneys. 3. As gouty complaints alternate with oedematous swellings such as he had. John Young, March 31. 1774, a patient in the clinical ward, was seized with severe pains in his feet and legs, and oedematous swellings appeared afterwards. In another case, after pains of the stomach, oedematous swellings succeeded. 4. The urine of a pale colour showed a spasmodic stricture of the secreting organs.

Here the ischuria was the cause of the oedema and dropsy, and not these the cause of it; as the ischuria appeared for some days before them; and as these were much diminished before he died, but the ischuria still continued.

The retention of the urine, and increase of ammoniacal salts and acrid oils in the body, must have given rise to a number of those symptoms, as thirst, headach, pain in the breast, nausea, vomiting, startings, hiccup, fever, &c. The superabundant fluids

were secreted in greater quantity, by the exhaling vessels of the cavities, and produced hydropic swellings; by those of the intestines, and produced purging; by those of the skin, and produced sweat. In some cases it seems to have been secreted by the salivary glands, and then to have retained the natural taste of urine. The very slow pulse, which we discovered at first, may be attributed to the water found in the ventricles, which, perhaps, had been diminished along with the other hydropic swellings. Perhaps, there might have been, at first, some collected on the surface of the brain. To the same cause the comatose state is to be attributed.

He had taken many diuretic medicines before he came in; but in vain. As we had not heard of his arthritic habit, which would have altered the treatment, and pointed out some applications to the feet, the only disease that appeared was the ichuria, and consequent dropical and oedematous swellings. From the dullness of pain, and slow pulse, no inflammatory symptoms appeared, at first, to require bleeding, or other evacuations. It was probable, that an increase of urine would abate
all

all his complaints. Diuretics seemed, therefore, first and principally, indicated. Crem. Tart. seemed to be the most proper medicine, as diuretic, laxative, and antihydrotic. The natural looseness did not contraindicate it, but rather encouraged us to proceed, as it appeared an effort of nature. Besides, I had given it before in a natural purging, without increasing that evacuation. He got unc. fs. each morning; and it produced two or three stools, which he would otherwise have had from his looseness. To relieve any spasms in the secreting organs, he got each night, at bedtime, L. L. gtt. xx. with f. nitre scrup. i. He continued for eight days in this course, without any increase of urine. We then tried stronger diuretics, of the heating kind, as infus. bacc. junip. and pilul. ex allio. But they were attended with no sensible advantage.

Whenever the pulse became so strong as to bear bleeding, he lost unc. viii. of blood, which was fizy. As he seemed eased by it, and as the pulse continued strong, it was repeated thrice. He appeared easier after each bleeding, his pulse bore it well, and the swellings and other symptoms abated.

bated. The heating diuretics, in this state, were given up, and a mixture of vinegar and nitre was substituted in their place, in each dose of which, taken every two hours, there was scrup. i. of nitre. Fomentations were applied to the region of the kidneys, and ol. camph. was afterwards rubbed on the part. He was ordered the semicupium, which, from a deficiency of water at that time in the town, he got once only; and which then seemed to have a good effect, as he passed a gill of urine when he was in it. As the coma and insensibility seemed to indicate some compression of the brain, an acrid clyster was ordered, to evacuate and relieve the head. But it did no service, as water in the ventricles is not easily absorbed.

ISCHURIA VESICALIS.

An ischuria, without any diminution of urine, may seem a contradiction; of which, however, cases occur. The natural quantity of urine, or more, perhaps, may be passed, and yet the patient die, from a distention of the bladder. No definition of the ischuria comprehends this case; so
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there is no wonder that physicians mistake it for some other complaint. A disease, which so far deviates from its constant and fixed character, must be curious and instructive to physicians.

HIST. II. March 3. 1778. Archibald Ferguson, 58, of a strong spare habit, and never subject to the gravel, had, during all last winter, a cough, with expectoration, which retired on the approach of his present complaints. About the 17th of February, he felt some difficulty of passing his urine, and much pain about the region of the bladder, which was eased on voiding urine. He continued in this state until the 27th of February, at which time he turned easy upon the application of some medicines. After this, the abdomen swelled, and he had pains in his loins and thighs. When he came into the clinical ward, March 3d, his abdomen was swelled and tense, and an evident fluctuation was felt, while some who touched him thought that it was sonorous, and produced by wind. The former had felt the abdomen below the umbilicus, so they must have felt a fluctuation; while the latter probably had touched the upper parts, where they could find none. A
tumor

tumor was discovered betwixt the umbilicus and spine of the os ilium, on the left side, which gave him much pain, especially when pressed. This tumor became more easily felt after the swelling of the abdomen decreased, seemed round, and very near as large as the head of a child. It appeared very much on the left side; and I often felt it in that situation even when he lay on his right side, and the tumor then became dependent. He passed urine frequently, and rather more than in health, as we computed it to be about four pints a day. It was always clear, and of a light colour. His body had a strong disagreeable smell, his skin dry, belly bound, and his appetite entirely gone, so that he had hardly taken food for 12 days. His legs swelled slightly, for some days, in the evening. His pulse was generally regular, sometimes slower than natural, as I felt it once at 64, sometimes quicker, as at 92. It is once marked rather strong. He was often seized, especially after eating or drinking, with hiccup, which increased and lasted till his death. He had slept little. He was very indistinct in his answers; so that we never got his real, but often
his

his false feelings, which contributed to deceive us. On the 20th day of his disease, after some doses of squills, the general swelling of the abdomen fell, became much softer, and discovered, more distinctly, the swelling of the left side. 21st, A vomiting appeared. 22d, He became more indistinct, and delirious. 23d, He died.

When opened, the tumor, which was so distinctly felt in the left side of the abdomen, between the umbilicus and os ilium, was owing to a distention of the bladder from urine. It was now in its proper situation, its fundus reached to about the division of the aorta into the iliacs; it entirely filled the pelvis, and contained between five and six pounds of urine, of a pale colour. On examining the external surface of the bladder, its neck, and beginning of the urethra, were found surrounded by a schirrosity, which impeded the evacuation of the urine. The bladder itself was much thickened, but not more in one part than in another. The ureters entered naturally; but were much thickened in their upper half, near the kidney. The kidneys were somewhat enlarged, particularly the left, which had several watery vesicles on its

its external surface. They were not in their usual situation, but lay close on each side of the spine, and very near the aorta ; so that the renal vessels were very short. What was very singular, the lower end of each rose over the spine, and they were united together in their membranes and substance, the aorta passing beneath the union. The bladder had pressed considerably on this part ; and the peritoneum covering them was considerably thicker than natural. In the thorax, the lungs were found adhering to the pleura every where, and in some parts very firmly. The lungs were of a loose texture, and black colour. There was about an ounce of water in the pericardium. The veins of the lower extremities seemed very turgid with blood.

Thus we are indebted, for a discovery of this curious disease, to dissection, without which we never could have known or believed what it really was. I could never consider it as an *ischuria vesicalis*, which, in fact, it was, as it wanted its characteristic marks. 1. There was no suppression of urine, which is the very definition given. 2. No swelling or weight of the hypogastric region, which is Sauvage's definition.

inition. There was, indeed, a large swelling on the left side ; but that is not the seat of the bladder. 3. He had not the constant desire, nor made any vain attempts to void urine, which is another mark. So that his disease wanted the pathognomonic signs of the ischuria.

I had not the least doubt but that it was an ascites, as he had a previous stoppage, or defect of urine ; subsequent swelling of the abdomen ; evident fluctuation, as it appeared to me ; preceding pains of the liver, as he said ; a tumor felt on the left side, which I conjectured might be a swelling of some of the mesenteric glands ; thirst ; tongue and skin dry ; and belly bound. I proceeded on this idea ; but dissection discovered that I was mistaken. I need not blush, however, at the mistake, since Rhuyfch and Morgagni, such great anatomists, were deceived in the same way. Rhuyfch, *Advers. Anat.* dec. 2. ch. 9. gives a case of a great swelling of the abdomen, which was owing to a distention of the bladder, though not suspected by him. Morgagni, *ep.* 39. § 33. gives a case exactly similar to that of our patient, where he had less reason to be mistaken, as in

his case the tumor was in the middle of the body ; in the present disease, it was in the left ; as in his case the head was not affected, while our patient was always very indistinct. He seems to have attended the woman before death, and mentions the quantity of urine, “ *Affiduum urinae stillicidium.*” He took it for a swelling of the uterus, “ *Nemine dubitante, quin ex cancroso uteri tumore decessisset.*” On dissection, “ *Apparuit vesicam urina distentam, id quod nemo, jugiter lotio, ut dictum est, distillante, inducere in anum potuisset, magnam illam tumorem fuisse.*” He describes the state of the bladder, “ *Suos reliquos parietes omnes ex dura albaque substantia digiti crassitudine habebat.*” The very state of urine was the same as that of our patient, “ *Cujus magnam vim continebat ; non lixiviosae, non crassae, non graveolentis, sed fere aquosae.*” The case was similar, and as fallacious as that which we have related. There is another case in Lieutaud.

As this disease seems so very different from the common ischuria, Sauvages, in his *Nouvelles Classifications de Maladies*, the first attempt towards his *Nosologia Methodica*,

thodica, calls it Hydrops Vesicae. But it would be improperly classed amongst hydropical diseases, as in this there is an increase, rather than a defect of urine, which happens in the hydrops; as the fluid is not coagulable; and as the distention of the gall-bladder from gall, or the intestines from alimentary matter, might, with equal propriety, be called a dropsy.

This disease probably arose, at first, from a scirrhus about the neck of the bladder, which occasioned the pain and stoppage of urine, which he felt at the beginning. After this time, the bladder seems to have been constantly distending, which must have been attended with great pain, unless, at the same time, it became proportionably and insensibly scirrhus. The pain afterwards disappeared, and the urine came off plentifully, which made him conclude that the symptoms had gone off on the application of some remedies. His belly then began to swell, as the bladder took more room. I felt a fluctuation, as I had struck the bladder. Others had touched it higher, and had felt it sonorous, from the air being collected in the intestines by the pressure of the bladder on them. The tumor

mor was very painful when pressed, as the distended bladder must be. But, how this tumor should always, during life, be felt so much on the left side, even when he was lying on his right, while after death the bladder was found in the middle, I can give no account.

The urine came off in considerable quantity, from the action of the abdominal muscles compressing the distended bladder; but, as the bladder, from its scirrhus state, had lost its muscular action, little could be evacuated at once. His legs swelled, from a compression of the iliacs. The strong smell was owing to the cuticular discharge becoming more lixivial, as the urine was so clear. His pulse was seldom quicker, sometimes slower, than natural, perhaps from some fluid extravasated within the cranium. The sudden decrease of the swelling of his body, arose from wind getting off during the operation of the squills, from the urine passing in greater quantity, and perhaps from some fluid deposited in the abdomen, and afterwards carried off. The hiccup, vomiting, and delirium, were owing to lixivial salts, and acrid oils retained, which

which always excite these symptoms, and in ischuria are forerunners of death.

He got a few doses of dried squills, which diminished the swelling of his belly, and brought off much wind. For the hiccup he got a mixture of musk, and afterwards opium; but without any good effect.

What would have been the consequence of drawing off the urine by the catheter? It did good in Rhuyfch's case, and the internal coat of the bladder came off mortified. But it could not have cured either the present case, or that mentioned by Morgagni, from the scirrhus state of the bladder, ureters, and urethra, though it would have given immediate ease by removing the distention. I shall conclude this case with Morgagni's observation, "*Multiplices, ad cautos reddendos medicos, utilitates habet haec observatio.*"

HIST. III. January 5. 1779. John M'Arthur, 60, about three months before this time, was seized with difficulty of passing urine, and with constipation, which were relieved by some medicines. But these symptoms soon returned. About five weeks ago his belly was swelled, from a tumor in the hypogastric

gastric region. About a week after, a hiccup came on ; and, in a few days, he was seized with vomiting, both which symptoms have continued since that time. When admitted, he had the hypogastric swelling, dysuria, but without pain, vomiting, and hiccup. He had lost all appetite, had thirst, and constipation, which always attended him. His pulse was 110, and weak. In the evening, about three pints of pale clear urine, without much smell, were drawn off. The next day, we found all the symptoms gone, except the pains, which were easier. After this, he continued to pass some urine, sometimes voluntarily, sometimes involuntarily, and insensibly ; but so much always remained behind, that his bladder was constantly full, unless when the urine was drawn off, which was done twice every day. The urine was sometimes pale, sometimes of a deep red colour, and once there was some coagulated blood mixed with it, which, perhaps, might have been occasioned by the catheter. About the sixth day, we found the urine very putrid, much purulent-like matter at the bottom, and passed then

then with more pain. About the 11th, the putrid smell disappeared. On the 12th, all the urine passed insensibly, except what was drawn off, and his hiccup had returned, but was more gentle. In this way he continued without fever, but often much troubled with the hiccup, especially during these nights, when the urine had not been drawn off the preceding evening. A month after admittance, his bladder, without the assistance from the catheter, was almost entirely, though insensibly, evacuated, and the hiccup had left him. When my attendance in the clinical ward was finished in the middle of February, he remained behind, without fever, hiccup, &c. and as much relieved as, perhaps, the case could admit of. He had no complaint, but that of voiding his urine insensibly, a natural effect of a scirrhus bladder, which appeared to me incurable.

I had heard but a few words from this patient, in the waiting-room, and those badly interpreted, as he spoke Galic only, when, from its similitude to the preceding case, I suspected the disease to be an ischuria; and, laying my hand on the hypogastric

gastric region, and discovering a swelling there, I was convinced of it before the case was taken.

Almost all nosologists have defined this disease to be "a suppression of urine." But both these cases show this definition not to be proper, nor to point out the disease; for, in both these patients, much urine, a quantity, in the former, rather above the natural evacuation, was passed. Others define it "a constant desire to pass urine, but with vain attempts." But, in neither of these patients was there a great desire, and the attempts were not in vain. Sauvages's definition is a good one; "tumor hypogastrii ex urinae retentione," as both our patients had a considerable swelling there, and Morgagni's had the same. This tumor must necessarily be present, and felt. But, in the former patient, it was very much to the left side, even though he lay on his right, which deceived me. I would therefore define it, "Dysuria, cum tumore hypogastrii, et, in progressu morbi, vomitu et singultu." These two last symptoms seem necessarily present in the progress of the disease.

There

There are many of the symptoms in this disease, as dysuria, &c. similar to those of the calculus vesicae ; but the latter has no swelling, no vomiting, nor singultus ; and has some symptoms which the former has not, as a constant desire to pass urine, pain in the end of the coles, tenesmus, and often a diarrhoea. It has more similitude to the ascites, as both are attended with obstructed urine, swelling of the belly, and fluctuation. But the ischuria may be distinguished from the ascites, as, in the former, the swelling is of a round defined figure, and just above the os pubis ; as the fluctuation is confined to that part ; as the urine is often pale ; and as there is pain in voiding it. So difficult has it hitherto been to distinguish this disease, that this much, on the diagnostic marks, seemed necessary.

This disease, in the latter patient, appeared to arise from a scirrhus and swelled bladder. For, 1. When the catheter was introduced, a considerable resistance was felt at the neck of the bladder, and it seemed to the introducer to pass around some tumor. 2. When the finger was introduced into the anus, a hard tumor was discovered. 3. Dissections, and that of

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the former patient, shew this to be the general cause. It may be thought that the whole bladder could not be scirrhus, else it would not have stretched so much. But it may be scirrhus and dilated also; though, I believe, a scirrhous oftener contracts hollow muscles, as the stomach and intestines.

Though the hiccup and vomiting abated much after the urine was drawn off, and prevailed most when that operation was not performed; yet these symptoms are, in part, to be attributed to the topical affection of the bladder; as they continued, in some degree, after the urine was drawn off, and during these nights, in which the bladder was fully evacuated, so they could not altogether arise from a defect of secretion, or an absorption of acrid urine. The paleness of the urine first drawn off, which must have been in the bladder for some time, was remarkable. It was found equally pale in the former patient. Was this owing to a general spasm of the secretory organs of the kidneys? or did Nature attempt to secrete the salts and oils by other organs? I am apt to believe the latter

ter cause, as both this and the former patient had constantly a strong lixivial smell.

This case, whether we considered the symptoms or cause, promised no successful issue. As many of his complaints arose, immediately, from a stoppage of urine, its evacuation by art, and a repetition of the operation twice a day afterwards became necessary. All his complaints, vomiting, hiccup, &c. almost went off, except the dysuria, which constitutes the disease.

The hot bath was ordered every day, to relax the scirrhus bladder, to open the skin, and to assist the following course. He got an opiate every night, as he slept ill; and it had the desired effect. No better remedy occurred, for the obstruction, than a mercurial course; and no better preparation of mercury than Plenck's solution, as the gum Arabic would cover the urinary passages. He got *unc. fs.* which contains *gr. vi.* of mercury, twice a day. I intended that it should have affected his mouth a little, which this preparation does moderately, and which effect was produced. He took it about twenty days. His belly was, during that time, bound, so that we were often obliged to give him *ol. ricini.*

cini. Mercurial pills were afterwards tried; but they seemed to purge too much. Mercury was applied to the part affected, by seating him over the vapour of native cinnabar thrown on coals. But he found no advantage from these mercurials; so they were given them up.

Aq. calc. to the quantity of a bottle in the day, was next given. This, as an aperient, might open the obstruction, and, as a cicatrizer, might heal any ulcers there. A few days afterwards, he began the bark. This plan seemed to agree with him, as his fever disappeared, as his hiccup left him, and as he had no complaint but that of voiding his urine insensibly, which always must attend a scirrhus state of the bladder.

ISCHURIA URETHRALIS.

This disease seldom occurs in the clinical ward.

HIST. IV. March 6. 1778. David Wardlaw, 60, had a gonorrhoea about six months ago, which was stopt by medicines, in two or three days. He felt, soon afterwards, a difficulty in passing his urine, which

which has gradually increased since that time. About ten days ago, it was attended with pains in the glans and ardor urinae. He has passed little, for four days, and only two gills the last day, with very great difficulty. The hypogastric region is swelled and pained. On introducing the catheter, three pints of urine were brought off, by which the pain and swelling were removed. The catheter required force to make it pass the neck of the bladder, and blood followed the operation. The finger, in ano, found a hard tumor about the neck of the bladder. 9th, Urine passed in small quantity. 10th, Right testicle began to swell, and continued so for some days. 13th, The catheter entered easier, and the tumor was found to be less by the finger. 16th, Urine passed easily. But the swelling of the testicle continued for three weeks.

We are sure that the cause was lodged in the urethra, and in the beginning of it next the bladder; as the finger found the tumor there, and the catheter was obstructed in its passage at that place. But, whether it was a swelling of the verumontanum, prostate glands, vesiculae feminales, &c.

&c. was uncertain. The affection of the testicle seems to point out the last. These parts are often affected by tumor and scirrhus, after a gonorrhoea, especially if suddenly stopped. The swelling of the testicle is a common effect of such tumors, and of the gonorrhoea, and is not occasioned by the absorption of any venereal matter into the blood, and fixing on the testicle, nor to any passing down the vas deferens ; but, 1. To a stoppage of the secreted semen, by the tumor pressing on the end of the duct. 2. To an increase of the secretion, from an irritation on the extremity of the excretory canal. Hence the testicle swells, from a preternatural quantity of semen collected in it ; and, in venereal cases, that tumor is no proof of the blood being infected.

As he had been bled, as his pulse did not appear strong, and as he was old, bleeding was not ordered ; but, as the original cause was venereal, he got the pil. mercur. and ung. mercur. rubbed on the part.

After the swelling of the testicle appeared, it became the principal object, as the easier passage of the urine showed that the
urethral

urethral tumor was less ; and I ordered fomentations, a poultice, and the repeated application of four leeches. Goulard's l'eau veget. min. seemed not to do much good. As its operation appears to be merely topical, the testicle was probably out of its reach. I have often seen the good effects of vomits of turp. mineral, in reducing swellings of the testicle. They are not used here, from a mistaken notion of their being severe ; but they never appeared to operate more severely than other vomits, or than could have been wished. He got turp. miner. gr. iv. which vomited gently ; and the swelling was lessened. It was repeated, the second day after, and it did not vomit, but purged him thrice. I was surprised that no spitting followed, which generally succeeds the second exhibition of this medicine.

When an inflammation of his eyes appeared, bleeding seemed necessary, though his pulse, even then, did not indicate it. He was bled, and his blood appeared fizy. This state of the blood, and his being easier after the operation, encouraged us to repeat it twice. The last blood had no size. I am every day more and more convinced

vinced of the utility of bleeding, even though the pulse appears not strong, in all topical venereal inflammations, as phimosis, paraphimosis, &c. although they have an oedematous appearance, which is too apt to prevent our doing it.

He got the dec. mezer. a bottle a day, which produced a vertigo. His testicle, next day, began to decrease, and was well on the fifth day. Whether this effect was owing to the previous bleedings, or in part to the decoction, can hardly be determined. I am apt to attribute a share of the cure to the miserion, from its general deobstruent effects, and from its success in the case of a swelled testicle, as mentioned under the article Mezereon.

S E C T. XVI.

Diabetes.

There is no disease that has been so little improved in its history, theory, or cure, as the diabetes. Aretaeus has given the best description of it. All attempts to explain its pathology have hitherto been fruitless; and it is yet, in its advanced state, incurable.

ble. This must, in some measure, be attributed to the rarity of the disease. Galen says, that he saw it twice only. Though at present uncommon, it occurs perhaps oftener than among the antients. This Mead attributes to the use of warm water among them, after drinking hard ; whereas the moderns quench their thirst with cold water, which, in that state, becomes more diuretic. The immoderate use of spirits, which were unknown to the antients, may perhaps afford a better reason. An accurate attention to two cases, which lately occurred to me, may throw some light on this singular disease, especially as one of them was mortal, and attended with a dissection, of which we have but few recorded.

Sauvages has properly placed it in the class of Fluxus ; but improperly in the order of Serifluxus, as the urine has none of the marks of serum. Others have arranged it among the spasms. I do not think their definitions have sufficiently marked its distinguishing outlines. It may be defined, "*Urina aucta et subdulcis ; sitis perpetua ; cutis arida et plerumque squamosa.*"

It has been distinguished by Etmuller into Vera and Notha. Vera, where the drink passes unchanged, as when red wine comes off red. Notha, when it arises from a colliquation of the fluids. That red wine passes unchanged, appears improbable; and the urine not coagulating, is a sufficient proof that there is no colliquation of the fluids. It may be more properly distinguished into Aquosa, when the urine is of a diaphanous watery colour, as in the two following patients; and Lactea, when it is of a milky whiteness. This latter kind has occurred to me; and it must proceed from the chyle's passing along with the urine. This latter species seems only greater in degree, where the attenuated oils of the chyle are allowed to pass, while, in the former, the salts alone are secreted with the urine.

Let us first take a view of the symptoms and circumstances of this disease, as these must serve for the ground-work of our after reasoning. The attention we paid to both cases will enable us to give a more accurate account than has, perhaps, yet been given. As the symptoms were
similar,

similar, we shall consider both cases together.

“ Alexander Arthur, admitted Feb. 13. 1775, had laboured under the disease for three years. James Murray, admitted March 10. 1778, has had it for four years.” Thus, contrary to Aretaeus’s opinion, it appears to be one of the most chronic distempers which we know, as it had lasted so long in both. If many of the nutrimental particles pass by urine, their great appetite helps to replace them.

“ Arthur’s age was 42 ; Murray’s was 20.” It seems not peculiar to any age.

“ It came on, in both, with increased thirst, and increased quantity of urine, which appeared together. Both felt great debility. Murray, at first, had some flatulency, which went off.”

“ Arthur’s thirst was immoderate, and unquenchable. He drunk between ten and twelve English pints a day, without being satisfied. The quantity was greater, during any two hours of the forenoon, after breakfast, than during the same time, equidistant from dinner, in the afternoon. Murray drank about four pints a day, and more in the afternoon than the forenoon.”

It

It is the great quantity of urine which has hitherto characterised this disease. "Arthur passed from 12 to 15 pints of urine during 24 hours. When he drank 10 pints, he passed 12; when he drank 12 pints, he passed 14 or 15; so that his urine exceeded his drink generally by 2 pints. He passed more proportionally in the evening than in the forenoon. March 10th, between 4 and 6 P.M. he passed 4 pints. 11th, Between 10 and 12. A.M. he passed 3 pints. Murray, on the 13th of March, drank, during 24 hours, 4 pints; but his urine was 12 pints. 16th, He drank 4 pints, and passed between 11 and 12 of of urine. 17th, From 12 at noon to 12 at night, he drank 4 pints, and passed 8. From that time to 12 next day, he drank none, and passed 4 pints. 20th, From 12 at noon to 12 at night, he drank 2 pints, and passed 6; from that to 12 next day, he drank 1 pint, and passed 4. So that, when he drank 4, he passed 12 pints a day; when he drank 3, he passed 10 pints. Hence his urine always exceeded his drink, by 8, or at least 7 pints." These quantities of urine, though quadruple of the usual quantity in this season of the year, are small when compared

pared with what some authors mention; as in the case of the girl described by Cardanus, where 36 pints were passed each day, when her body weighed only 250 pounds, and her meat and drink only 7 pounds; and as in that of the woman mentioned by Shenkius, where the urine passed, in a few days, was more than the weight of her own body. Besides drink taken occasionally, they get in the Infirmary much liquid food, as broth to dinner, and beer to breakfast and supper, which may amount to 3 1-half pounds a day. The solid food, at an average, may be about 3 1-fourth pounds a day. This, if even we allow the whole to pass by the kidneys, nearly amounts to the excess of Murray's urine above his drink, but will not account for the surprising quantities recorded by the above authors. From the preceding experiments, it appears, that more was always passed from 12 at noon to 12 at night, than during the other 12 hours.

But the quality of the urine is yet more singular, and hitherto less observed. "Arthur's was of a pale whey colour, with little or no sediment. This colour was owing, perhaps, to the greater quantity of saccharine

faccharine matter in it. Murray's was of a pale straw colour, and had no urinous smell." Authors mention oil on the surface of diabetic urine; but I could discover none on the urine of either of these two patients. The scum, which is formed on the surface of urine, left in quiet to follow its spontaneous changes, has, perhaps, deceived them.

"The urine of both patients had an evident sweet taste." This the ancients had observed, though some moderns have denied it. But none ever thought of discovering the cause of this taste, till Dr Dobson analysed the urine, by evaporation and crystallization, and got 1 ounce, from each pint of urine, of a faccharine saline substance, which, when tasted, he could not distinguish from brown sugar, except by its leaving a sensation of coldness on the palate. "Arthur's urine, evaporated to an extract, by my friend Dr Black, afforded 1 1-half oz. from each pound, of a brown faccharine matter, which had a weak saltish taste. Murray's, treated in the same way, gave but 1 ounce for each pound, of a substance resembling coarse brown sugar, with a faccharine and
urinous

urinous smell, and a sweat and salt taste." The quantity of saccharine matter in Arthur's urine is wonderful, as 1 pound of afs-milk affords only half an ounce; of cows, only half that quantity. The salt taste shows that it has the due proportion of the ammoniac and marine salt; but they could scarcely have been separated from the saccharine by redissolving and crystallizing.

"The urine of neither was coagulable by fire, or ol. vitrioli." I find, since, that Dr Dobson had tried the same experiment with the same result. So it contains no coagulable lymph. In this it agrees with urine in a natural state. Cottunni and Sarcome mention coagulable urine in the dropsy; but, though often tried, I never yet discovered hydropic urine to have that property.

"Half a pint of yeast was mixed with 24 pints of Arthur's urine. It soon began to ferment, and emit a vapour, like fermenting liquors. Next day it fermented strongly. On the 3d, the fermentation seemed over, it had lost all sweetness, and tasted like small beer. Murray's, treated in the same way, fermented into tolerable small beer." This shows the contents of the urine to be,
 mostly

mostly of a vegetable nature, as no animal fluids are capable of the vinous fermentation.

I next tried the spontaneous changes of their urine. "On the 24th of March, six pints of Arthur's urine were put into a clean stone vessel, and placed in the same room with himself. At the same time, as much urine of a convalescent was placed by it, as a standard. On the 6th of April the former was still sweet in taste and smell, while the latter smelled like stale urine, and had for several days a thick mucilaginous skum on its surface. On the 17th, the former had got a mucous cover, and a slight putrid smell and taste; the latter was very putrid. So both were thrown out. On the 10th of April, about 20 pints of Murray's urine were put into a wooden vessel, placed in a warm room. On the 20th, its surface was found covered with much skum, and many air bubbles, which showed that it was in a state of fermentation. It tasted acidulous, and like weak hard small beer. So that it was under the vinous fermentation." Dr Dobson, too, found that diabetic urine turned vinous and acid before it corrupted. The
season,

season, the state of the weather, the vessel, and the quantity, favoured the vinous fermentation of Murray's urine, more than of Arthur's, though there were more saccharine salts in the latter than in the former.

“ The appetite in both was much greater than in good health. In Arthur it was voracious, and he felt a continual gnawing hunger. Murray's hunger was not so uneasy.” This helps to support the body under its great waste.

“ Arthur's skin was always dry, especially from the middle downwards. Murray's always dry and scaly, especially on the breast. None of the two ever sweated.”

It is not a matter of mere curiosity to fix the state of the cutaneous exhalation and inhalation; as the excess of the urine above the drink has been attributed to an increased inhalation. This was attempted by weighing our patients, forenoon and afternoon, at nearly equal distances of time from dinner, and from supper. “ March 7th, Murray, betwixt 4 and 6 P. M. lost in weight, that is, perspired 3 oz. 3 dr. On the 8th, between 10 and 12 A. M. he gained 2 1-half oz.; so that, instead of losing by perspiration, he absorbed that

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quantity

quantity more than he perspired. On the same day, between 3 and 6 P. M. he lost 3 oz. On the 9th, between 11 A. M. and 1 P. M. absorption exceeded perspiration by 2 1-half oz. That day, between 4 and 5 P. M. his perspiration exceeded inhalation by 4 oz." By these five experiments the perspiration exceeds by near 2 oz. at a medium, in an hour, the inhalation in the afternoon; but, in the forenoon, the contrary takes place, and the absorption exceeds perspiration by 1 1-fourth oz. in the hour.

We can now compare in Arthur the quantity of drink, urine, and perspiration. In the forenoon he drinks more, and absorbs more, but passes less urine. In the afternoon he drinks less; but perspires more, and passes more urine. Hence the following conclusions arise: 1. That the increase of urine is not owing to the immediate stoppage of the perspiration, as the urine is at that time least. 2. That this increase does not arise from an immediate quantity of drink, as the urine is least when the drink is most. 3. That the fluids are accumulated in the body in the forenoon; as then the drink
and

and the inhalation are in greater, and the urine in less quantity. But, in the afternoon, the kidneys and skin are more open, while less drink is taken in; so that the body seems, then, in a progressive state of depletion. This is contrary to the established theory which supposes these evacuations to alternate. 4. As the urine exceeds the drink by 1, 2, or 3 pints a day, we may allow 2 at a medium. If we are to deduce this excess from absorption, which never exceeded 1 1-fourth oz. in an hour, the whole 24 hours of an absorption, equal to this, will not account for it; but we have discovered perspiration, in the afternoon, to be almost double of absorption.

The state of Murray's cuticular discharge was as follows: "April 7th, from 11 to 1 P.M. he gained 3 oz. From 5 to 7 P.M. absorption was equal to perspiration. On the 8th, from 11 A. M. to 1 P. M. he gained 3 oz.; in the afternoon, from 5 to 7 P. M. he lost 30 z. 9th, Between 12 and 1 P. M. he lost 9 oz. and in the evening, for 1 1-half hour, no gain or loss. 10th, From 2 to 5 P. M. he lost 1 1-half oz. 13th, From 12 to 2 P. M. he gained 3 1-half oz." From these experiments,

experiments, there appears to be an ebb and a flow ; but not at stated times, though, in general, absorption took place in the forenoon, and perspiration in the afternoon, as in the former patient. If, to compensate the 12 pints of urine, we take 4 pints of drink, and near 7 pounds of fluid and solid food at meals, we shall still have above 1 pound remaining, for which, by the preceding experiments, we are not entitled to account from absorption. There is no remaining source, but from the consumption of the body.

Is the perspiration or the sweat, saccharine ? I cannot answer that question, as I had not attended to it. If it is not, the fault or primary cause must be in the kidneys alone.

“ Arthur’s blood was in a natural state, and the serum had no preternatural sweetness. Murray lost 2 oz. of blood ; the first oz. was taken into one cup, and the last into another. The former was natural ; but the latter had a very thick inflammatory crust.” I did not expect to find a fizy crust in the blood, where the pulse was rather weak, and almost natural as to strength. “ He lost, again, on account

count of a stitch in his breast, 5 oz. of blood, with the same appearances as before, in the first and last cup. The serum was saline and natural." One would have thought, considering what a quantity of saccharine matter we found in the urine, that the serum should have contained as much of it, as to be discovered by the taste. Hence, this saccharine matter must either be fabricated by the kidneys ; or, if made by the digestive organs in the primae viae, it must pass very quickly through the vascular system.

" Arthur's pulse was sometimes at 75, and at other times at 90. Murray's sometimes at 68, sometimes at 80. During a few of the last days of his life, it was 130." In the case which I saw attended with milky urine, there was a constant hectic, which was not without danger. Thus, a hectic pulse often attends this disease.

" They were both much emaciated, and complained, from the beginning of their disease, of great debility. Both of them slept well. They never had any acid taste in their mouth, or swelled belly, as Dr Dobson's patient had. Arthur had complained, for a year, of coldness

coldness of his lower extremities. Murray complained much of a pain in his left foot ; and his legs and ankles were sometimes slightly swelled. He had besides lost 16 teeth since his disease began ; several of those remaining were loose, and the alveoli wasted."

" Arthur was two months and an half in the clinical ward, and dismissed in the same state he came in. Murray continued under my care from the 10th of March to the 20th of April, at which time his pulse became 130, his breathing difficult, his drought increased, and he had a stitch below the right mamma, which was aggravated on coughing. He lost five ounces of blood, had a blister applied, got wine, &c. but died on the night of the 22d. On examining the kidneys, the left was larger than natural, and its substance softer. There was no uncommon appearance in the right kidney, except a greater degree of softness. The substance of both kidneys had a sour odour. The ureters were of a natural size. The coats of the bladder were stronger than common ; and no lacteals could be observed about the neck of it, as some have suspected that much of the fluid

fluid is deposited in the bladder, by some retrograde motion in the lymphatics. All the glands of the mesentery and mesocolon were enlarged, of a pale colour, and firm consistence. The vascular system of the mesentery was rather large. The liver was natural, and had some firm adhesions to the colon. The large intestines were much loaded with hard faeces. The rest of the abdominal and thoracic viscera were natural." If the urine in the kidneys had been tasted, it would have ascertained the course, about which there is some doubt, of the saccharine salt. But the peculiar sour odour shows, that the saccharine matter comes from the kidneys, and becomes sour, by fermentation, after death.

The kidneys were afterwards sent to Dr Monro, for further examination ; and I received the following letter from him :
 " The kidneys of your patient were unfortunately cut open before I received them, which put it out of my power to examine them properly, by injecting their vessels. I regretted this the more, that I had, long ago, found it possible to make an injection, coloured with vermilion, pass from the renal artery into the uriniferous tubes,
 when

when there had been no previous disease of the kidney. Both kidneys seemed to be of a large size, were of a remarkably pale colour, and felt rather softer than common. No other difference in the texture of the vessels, or solid parts, could be distinguished by the naked eye or with glasses. The smell of both kidneys was certainly different from what I had ever observed, being in some degree sour, as well as putrid."

Arthur, a mason, assigned no cause for his disease. But Murray, a weaver, imputed his to cold and dampness, to which, from his business, he was exposed. That employment affords the clinical ward a very great number of patients, in all the various diseases of debility. Authors have observed, 1. That the diabetes often follows acute diseases, which debilitate the whole body and kidneys. Aretaeus is of this opinion. Sydenham said, that it followed intermittents, especially if much venesection had been used. 2. That acrid purgatives induce it. Sydenham observed it to arise from severe purging in intermittents. I knew the chylous species brought on by too frequent doses of jallap and merc. dulc. 3. That it arises from a too frequent

frequent use of diuretics. Many such are mentioned by authors, as sperma rana-rum, muria foeniculi marini, succus betulae, cyder, and Rhenish wine. Willis mentions a diabetes, from the use of Rhenish wine for common drink, which ended fatally in twenty days. Yet I do not remember that any of the soldiers were seized with it, on the banks of the Rhine, in the march to Frankfort, in the year 1743, though they drank, as small beer, the most acid and weak sort of it. A gentleman, after drinking Dunse Spaw too plentifully, in cold weather, and in its vapid state, was soon seized with a diabetes. It was attended by a general laxity of all the urinary passages; as a gleet, which had been stopped for six years, appeared along with it.

4. That the bite of the serpent *Dipsis* occasions diabetes, and violent thirst. Aretaeus asserts this; yet it seems doubtful, as he adds, that some of those infected did not pass any urine, and as Lucan, who accurately mentions the other symptoms which attend its poison, says nothing of this.

As this disease appears so singular, it is not to be wondered, that there are a variety of opinions about its cause. Let us

take a short view of these, to see if they agree with the phenomena which we have discovered, or give rise to any method of cure.

The opinion of Galen, of Aretaeus, and of Willis, scarcely merits our serious consideration. Mead, in his treatise on Poisons, makes it an affection of the liver, and not of the kidneys. From too much watery drink, he says that the salts of the bile are not able to keep the oils dissolved; so that the watery part runs off by the kidneys, and the more oily remains in the liver, and produces a steatomatous collection; that the sweetness of the urine arises from the bile, as the distilled water of the bile is sweet; and that the urine at last turns bitter. But, it is objected to this opinion, that, 1. The urine, in Murray, was not bitter towards the end of his disease. 2. There was no obstruction of his liver observed, or is found in others. 3. No oil was seen on the surface of the urine of our patients.

Some attribute it to spasms of the secretory organs, and place it among spasmodic diseases. This opinion may be supported by the following arguments. 1.

All

All stimuli on the secretory organs and ducts increase the secretion. 2. In hysteria, a pure spasmodic disease, an increased quantity of urine is a leading symptom. 3. Willis observed those patients subject to spasms and cramps. It may be objected, however, to this opinion, that, 1. Spasms and cramps are not observed by others, and none were discovered in our patients. 2. Antispasmodics, as opium, &c. do not alleviate the symptoms. 3. There is no drought in pure spasmodic diseases, but much in this. 4. This opinion does not account for the saccharine, acescent, and fermentable urine. In the hysteria, the urine has not those qualities, which seem necessary to constitute a diabetes.

Others attribute it to the perspiration being diminished, or the inhalation increased, as they can account for the quantity of urine, so much surpassing the drink, in no other way. But, 1. This does not account for the particular qualities of the urine. 2. Sudorifics and diaphoretics are not attended with any good effects in the cure. 3. In both of the present cases, especially in Arthur, perspiration and urine were increased at the same time. 4. We found,

found, that the greatest absorption fell much short of the greatest perspiration, during the same time. So that we may safely assert, from experiment, that perspiration, at least, balanced absorption, during the whole day.

It has been generally thought to arise from laxity of the secretory organs of the kidneys; and for the following reasons: 1. Diuretics, mineral waters, &c. open the passages too much, and bring on a paralytic state. 2. The analogy to other increased secretions, from laxity, as sweating from too relaxed a skin, makes this probable. 3. The cure, by stimulants, increasants, astringents, corroborants, &c. show that laxity is the cause. 4. External constriction, by a belt, is of use in curing this disease. 5. Inspection of the body confirms it, as the kidneys are found lax. Petrus Pawus, Obs. Anat. 2. "Filia diabete laborabat, &c. invenit renes solito flaccidiores." Morg. Ep. 42. has a similar case. In our patient, the same was discovered. To this opinion, it may be objected, 1. That too much cold water may bring on general, as well as topical laxity. 2. That tonics, &c. cure general, as well as topical weakness. 3. That

That Morgagni has three other cases, where the kidneys were lax ; but no diabetes subsisted. 4. That if it depended on the kidneys alone, the disease would happen oftener, from inflammations, calculi, &c. affecting them. 5. That no state of the kidneys, alone, can produce saccharine matter.

The secretory vessels of the kidneys may be supposed so altered, as to produce these symptoms. For, 1. The secretion depends on the state of the secretory organ ; so the former must alter with the latter. 2. No saccharine matter is discovered in the serum or sweat. 3. There is threetimes more of saccharine salt in diabetic urine than in milk, from which alone it is supposed to arise. To these arguments, it may be objected, 1. That, in most secretions, the secreted matter, as milk, sweat and urine, is allowed to have existed in the vessels ; so, it is probable, that it does in the rest. 2. That, to suppose the kidneys capable of forming such a quantity of saccharine matter, without direct proof, cannot be credited, especially as such a salt enters from the primae viae. 3. That the quantity of saccharine matter in the chyle is not yet exactly ascertained.

Were

Were I to give a theory, to explain the nature and symptoms of this wonderful disease, I would say, that it arises from a defect of the animal or assimilatory process, by which the aliment is converted into the nature of our body. I have long looked on the excess or defect of this process, as the source of many disorders. All putrid diseases, the scurvy, &c. seem to be owing to its excess; acidity of the stomach, &c. to its defect. Among the latter the diabetes may be arranged. For, 1. The remote causes shew it. It arises from what debilitates the body, as moisture, preceding diseases, great evacuations, &c. by which it becomes incapable to assimilate the food. So Sydenham thought, "*Affimulandis succis protinus impar est.*" 2. The white chylous matter, which is often secreted with the urine, shows, that the vegetable part of the chyle is not assimilated. The dilatation of the urinary excretories cannot, alone, account for this, as the serous part of the fluids would then escape too, which does not happen. 3. Sugar is found in diabetic urine. Sweet chyle is the first product of the stomachic and intestinal digestion; as chyle, in the thoracic duct, and
milk,

milk, which is a speedy secretion of it, contain much saccharine matter. This is changed, in some hours, by the animal process, into an ammoniacal salt, which is that found in all the excretions. But the saccharine salt, still remaining in the urine, which is the most perfectly animalized fluid, shows that there is great defect in the animal process. 4. Urine, being of a septic nature, runs fast into putrescency. But the diabetic urine turns acidulous; and with, and often without yeast, undergoes the vinous fermentation. These peculiarities show its vegetable nature; as vegetable juices, alone, are capable of the vinous and acetous fermentations. It likewise shows, that it is the saline parts alone of bodies that ferment; for the fire must have coagulated the mucilaginous particles, had there been any in the diabetic urine. These vegetable salts show a defect in the animal process. These arguments appear more convincing than any of the former. But it may be objected to them, 1. That animal food should cure it, which it did not. 2. That septics, which brought on putrid eructations, made no change. 3. That the proportion of saccharine matter is much greater

greater in their urine than in milk. But milk has not, perhaps, the whole saccharine salts of the chyle.

If the theory alone of this disease were defective, it would be a matter of less consequence. But, from what we are to relate, the cure is fully as imperfect. All those who have seen the disease, agree in pronouncing it difficult of cure, especially if the patient is old, if it arose from habitual drinking, or if it has been of long standing. As with these two patients, before I saw them, and afterwards, many medicines were tried, I shall divide them into seven classes, sudorifics, antispasmodics, stimulants, astringents, tonics, inkrassants, and septic.

1. As many are of opinion that it arises from a defect of perspiration, it was proper to try such medicines as increased that discharge. Besides opening the skin, they would make a new determination from the kidneys to the surface. Hence Arthur, before he came into the clinical ward, had got P. Dover. scrup. i. It sweated him; but made no alteration on the disease. Murray had got it too; but without success. Arthur had likewise been
tried

tried with the hot bath, without effect. So increasing the excretion of the skin does not diminish that by the kidneys, though they are, in general, so similar, and so often compensate the defects of each other.

2. Antispasmodics were naturally thought of, as the disease has been attributed to spasm. A blister had been applied to Arthur's loins, which, from its stimulus and drain, is a powerful antispasmodic; but without any good effect. He had got a vomit of ipecacuanha, without success. He had got pil. merc. gr. x. morning and evening, till his mouth was affected; but they did no good. With this view, I gave him opium, to gr. .iii. a day. It made him sleepy, but did not diminish his urine. Murray had got bark, without effect. I gave him ass. foetid. drach. i. a day; but it took away his appetite, was attended with a feverish state, and was at last given up, as disagreeable to him. It seemed rather to hurt him.

3. As this disease was thought to arise from laxity, and a paralytic state of the tubuli uriniferi, stimulants, to excite their action, have been recommended. In this view, Dr Brisbane considered the disease,

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when he proposed tinct. canth. as a cure. This Arthur had got from gtt. xv. to XLV. every night at bed-time, without effect; which I thought a sufficient trial, so did not repeat it. Murray had got from xv. to xviii. gtt. a day. By mixing drach. vi. of muc. gum. Arab. it may be given to l. gtt. twice a day. So he was brought, by degrees, to take that quantity; but without any advantage. It griped him; but produced no aphrodisiac effect. Both these cases make the antidiabetic powers of this medicine very doubtful. It is, indeed, difficult to conjecture how a diuretic can cure the excess of this evacuation. With the same view, Arthur had got the vitr. caerul. to gr. iii. a day. It excited a nausea; but had no good effect.

4. Astringents are given in all increased evacuations; hence they are used in this. They brace the vessels, and make the nerves less sensible. Arthur had got alum, from gr. x. to xx. with terra Japon. gr. v. every two hours, and afterwards ser. alumin. unc. iv. for each dose, so much recommended by Mead. But these did no good. He had got aq. calcis, without any better success. As little, in this way, was left

left for me, I tried one of the strongest astringents, gum Kino, gr. xv. That its operation might be stronger, by opening a new drain, S. C. C. gr. iii. were added to each dose of it. He generally sweated with this during the night ; but it had no effect in the cure of the disease. I ordered tinct. antipthific. coch. parv. bis in die. In two days, his urine was only 8 pints a day. But its good effects did not continue. He drank, for several days, hard water, which is similar to Bristol water, so much used in the diabetes, as both contain an imperfect salt of an astringent nature ; but it did no good. Murray had got fer. alumin. unc. iv. twice a day. Afterwards, alum, in substance. He got gum Kino, gr. x. four times a day ; then alum and sang. dracon. equal parts, liquified, of which he took, at first, drach. fs. then drach. i. four times a day ; but all without effect.

5. Tonics are more powerful corroborants than astringents are. Many of those are astringent, as bark, &c. But they have, besides, a stimulating power, by which they rouse the nervous system, excite the circulation, and are powerful in all

all debility. They were amongst the first remedies given to Arthur, as they had not before been tried. I gave him pulv. cort. Peruv. drach. fs. four times a day, for ten days. It made him more thirsty; but had no good effect. As cold is a good tonic, a fall of cold water was first applied to the region of his kidneys. It produced a heat there, which lasted a quarter of an hour. This was continued for five days. He then used the general cold bath; but all without effect. A bandage, which corrects the laxity of the body, and diminishes the irritability, has been recommended to be applied to the loins. But it did no good. Strengthening plasters did no service. Murray got Hartfield Spaw, bark, and a bandage, without effect.

6. Incrassants and demulcents are used to stop all thin secretions, and oppose acrimony. Hence Arthur was ordered a decoction of ichthyocolla and gum Arabic, with mucilaginous food, as fago, and thirty oysters a day. These diminished the urine to nine pints a day. But, as it did not decrease any more for 17 days, during which this course was continued, it was given up. Murray got the same medicines, with

with 40 oyfters a day ; but without any effect.

7. As the urine appeared too little animalifed, I endeavoured to promote the animal procefs by feptics. It is the firft time that I, or perhaps any other, ever purfued that intention. Ocul. cancr. drach. i. then drach. ii. were therefore given, four times a day, along with a tea-fpoonful of Sp. C. C. in three ounces of water. His belly foon became bound, he turned thirfty, and his eructations became putrid, which fhewed that the medicines had answered their intention, at leaft in the primae viae. But the urine was not altered in quality or quantity. The fame plan was purfued with Murray, and with the fame effects ; and befides, he felt lofs of appetite, and pain of his ftomach.

Thus thefe two patients have exhausted all that experience had ever recommended, and almoft all that theory could fuggelt. Yet, in both cafes, the difeafe has refifted all the means of cure ufed. When we are convinced of this, thefe histories are not without their advantage, as, by fhowing that the field is quite open, we may hereafter

after hope for some more successful attempt.

S E C T. XVII.

Experiments upon some remedies used in the Hydrops.

There is no disease which affords hospitals more numerous patients than the different species of Hydrops, and none of which fewer are cured. The incurable nature of hydropic affections, was of old remarked by Aretaeus: “Ab ipso pauci liberantur, idque felicitate, ac deorum potius quam artis auxilio.” Modern physicians, were they as honest, could say little more. All attempts, therefore, to gain ground in the cure of such diseases, are worthy of attention. I shall, therefore, relate the successful and unsuccessful experiments which have been made.

CREMOR TARTARI.

Vincenti Manghini, in the Comment. Bonon. tom. 4. first proposed cremor tartari, as a cure for the ascites and anasarca, and supported

ported his proposal with 16 cases, in most of which it had been serviceable. He gave from drach. iv. to drach. vi. a day. Often 20, sometimes 40 days elapsed, before it had any visible effect in increasing either stool or urine; but, afterwards, the belly became loose, and the urine thick, bilious, and fabulous. Many of the patients had swellings in the liver and spleen, which were likewise cured. From these cases, crem. tart. appeared a powerful diuretic; and the patients were reduced to great leanness; but they soon recovered, after the medicine was stopped. The patients, indeed, were all young; and the disease was generally but of some months standing. Some other Italian physicians, after this, had mentioned its general success, but without fixing it on the foundation of experiment, as Manghini had done, and as the subject merited. The facts appeared to me authentic, strong, and meriting out utmost attention. Relying on these, it was first exhibited here in the year 1769, when I gave a course of summer clinical lectures; and it was at that time successful in the cure of some hydropic diseases. During that summer, therefore, and the following,

ing, its value was further ascertained. It has, since that time, been much made use of here, and over Scotland ; but is, as yet, little used, as I am told, in the southern part of the island, though each winter the students of medicine have an opportunity of learning and seeing its good effects. So slow is the progress of approved medicines. Manhagini has the whole merit of the discovery, and of introducing a new and valuable medicine. I shall give the facts, successful and unsuccessful, that every one, where this medicine is not so much used as here, may be at liberty to form his own conclusions.

EXPER. I. 1769, May 23. Alexander M'Intosh, 21, has had, for two months, a quotidian, for which he had got vomits, physic, and the bark. His last fit was on the 20th. His legs had been swelled for a fortnight, and belly for some days. Feels a pain and swelling about the liver, with headach, drought, hot and cold fits, cough, and pain of his breast. P. 94. ℞. Crem. tart. unc. fs. diff. in aq. font. unc. x. cap. quotidie summo mane. June 1st, abdomen less swelled. Belly more regular, but not loose. Urine increased. Rep. crem. tart.

tart. drach. vi. diff. in aq. lib. i. cap. u. a. 21st, His legs much fallen. Abdomen of the natural size. Pain and swelling of the side gone. Makes about 4 pounds of thick urine a day ; and belly more open. July 7th, dismissed cured, and much leaner. This patient was cured in six weeks. The medicine operated as a diuretic, but not as a purgative. He had taken about 22 ounces of crem. tart.

EXPER. II. July 25. Christian Sutherland, 20, has been affected with anasar-
cous swellings of her legs for two years,
which have much increased since a fever
she had a few months ago. She has felt
a constant pain, especially on pressure, in
the region of the liver. No swelling of
her belly, nor diminution of urine. Men-
ses regular. P. 100. She began with
oxm. colch. unc. fs. in the day, which was
increased to unc. i. fs. It operated power-
fully by urine ; but the swellings did not
diminish. Aug. 2d, she began with crem.
tart. unc. fs. and soon got drach. vi. dis-
solved, each day. She sometimes threw it
up ; and it neither increased her urine, nor
affected her belly. 26th, Left leg fallen an
inch ; right half an inch ; and they do not
T t pit.

pit. Pain of the side returned, for which she was bled. Sept. 9th, dismissed cured. Thus, anasaruous legs, of two years standing, were cured in forty days, without any sensible evacuation; and the cure so confirmed, that she suffered no relapse from bleeding.

EXPER. III. Aug. 23. John Hamilton, 28, on leaving Kent, was seized with a quotidian, which continued for two months, and then stopped. But there remained, in the left side of the abdomen, a pain, and great hardness, which seemed to be in the omentum. His legs had swelled, and continued so for seven weeks. On the anasaruous swellings going off, his belly increased, has remained in that state ever since, and is about six inches larger than its natural size. Headach, and frequent bleeding of his nose, for which he had been bled. P. 92. No diminution of urine. Began with crem. tart. unc. fs. dissolved; and, as it had no visible effect on his urine or belly, it was increased to drach. vi. On the 29th, he got unc. i. Sept. 7th, belly fallen two inches. Hardness on the left side less, and moveable. Belly generally open, and urine somewhat increased.

creased. 15th, Belly fallen three inches, and hardness less. More urine, but little purging. My attendance was finished before the cure was quite complete. Here the dropfy was owing to an obstruction in the omentum and mesentery; and the former decreased, as the latter diminished, without much increase of urine, or almost any purging, though he got unc. i. a day.

EXPER. IV. Aug. 26. To see how far its powers extended, it was tried in a case which to me seemed desperate. Agnus Johnstone, 40, after being overheated, and cooling suddenly, about a year ago, was seized with difficult breathing, and alternate hot and cold fits. His skin, eyes, and urine, soon turned yellow. After many vomits, and much physic, his belly began to swell, about seven weeks ago, and his urine diminished. Complains of pain in the left side of the hypochondrium, and cannot lie on it. Evident fluctuation in his abdomen. Respiration difficult. Belly loose. P. 88. Notwithstanding the looseness, he got crem. tart. drach. vi. a day. 31st, Purging diminished, and pain of the side, breathing, and appetite better; so the medicine was increased to unc. i. Sept. 8. seized

seized with looseness yesterday, and much green matter came off. Belly fallen two inches. Breathing relieved; and he can lie easier on the left side. 14th, Belly swelled again, and tense. Pain in the left side quite gone; but felt a pain below the short ribs of the right. Belly rather bound. I left him in the hospital. He was tapped; but his belly soon swelled again. The former plan was continued, and the crem. tart. increased to unc. i. ss. a day. Under this plan, the swelling of his belly gradually disappeared; and he was seemingly well. But, on November 8. having met with some vexation, he unexpectedly died. When opened, the external surface of the brain was tinged yellow, but not of so deep a colour as the skin was. On the external convex surface of the right lobe of the liver, a large cyst was found, with its sides as hard as a bone, containing a pint of clear serous water, in which swam many hydatides. The whole liver was large and hard; the gall-bladder was quite empty, but the ducts not obliterated. No fluid in the abdomen or thorax. This case, though mortal, yet is strong in favour of crem. tart. as it removed the dropsy, which
was

was the effect, though it could not remove the obstruction of the liver, which was the cause of the disease.

EXPER. V. July 10. 1770. George Brown, 26, affected, for about two years, with the lues venerea, which had destroyed the palate and septum narium, produced ulcers about the anus and internal canthus of one eye, &c. About four weeks before he came in, his belly, scrotum, and ancles, began to swell. Had an anasarca over all his body when I saw him. His abdomen was much swelled, and evident fluctuation was felt. Urine in small quantity. I put him on a course of Praec. Ciner. with Sulph. Antim. Praec. After the mercury began to affect his mouth, on the 20th, he got the merc. praec. and crem. tart. alternately, every other day. It opened his belly, and increased his urine. He often vomited, and sweated during the night on which he got the praec. ciner. and s. ant. praec. On the 29th, the swelling of the legs and belly was diminished. Issues were put between his shoulders. Aug. 6. belly fallen two inches. Spits 1-1 half pounds a day. Legs almost well. Issues do not run. 16th, Belly fallen another

ther inch. Spits 3 pounds. 24th, Belly 3 inches less. He was allowed a little wine. Sept. 1. belly fallen 2 inches. Spitting diminished. Passes much urine. Sept. 8. when almost well of both diseases, we were obliged to leave him in the Infirmary. The internal operation of the merc. et f. ant. praec. and the vomiting and sweating, which often happened after it was taken, assisted much the effects of the crem. tart. which, therefore, has but a share in the merit of this cure.

EXPER. VI. July 27. Janet Frazer, 48, about three years ago, felt her belly increased in size, and her urine diminished considerably. A few weeks after, her legs swelled in the evening. Abdomen at present much enlarged, with evident fluctuation. Feels a pain in both hypochondria. Breathing difficult in bed, and cannot lie on either side; palpitation and constriction about her heart. P. 64, and weak. R. Crem. tart. unc. fs. &c. 29th Belly more open, and urine increased. Rep. crem. tart. drach. vi. August 6th, Legs much fallen. Belly bound. Rep. crem. tart. unc. i. 16th, Though the salts sometimes purged, yet she was often so bound, that

that we were obliged to order a clyster. She sweats about her neck and breast. 28th, Legs of natural size. Belly almost reduced. 31st, Pain of breast, and difficulty of breathing almost gone, so that she can lie equally well on either side, and on her back, which she has not been able to do for these two years. Sept. 8. Dismissed cured. This patient was cured, in about forty days, of anasarca, ascites, hydrothorax, and perhaps hydrops pericardii, without any considerable increase of urine or of stool, her belly being generally bound during the cure.

EXPER. VII. August 18. Margaret Richardson, 37, after a fever, had a swelling of her legs, and diminution of urine. Her feet and ancles are much pained, swelled, and pit on pressure. Drought, white tongue, headach, and want of sleep. P. 88. R. Crem. tart. unc. fs. diff. in aq. Cap. mane. 27th, Stools loose, and urine increased. Ancles and feet alone swelled. 31st, Swellings almost gone. Urine high coloured, turbid, and thick at bottom. Purged thrice a day. Sept. 4. She got the bark. 8th, Dismissed cured.

EXPER. VIII. July 16. Jean Short,
70,

70, was attacked with anafarcous legs, about five months ago, on the disappearance of some hard, and blue or livid tumours on her legs. The anafarca is general over all her body. Her belly is also swelled; but no fluctuation can be felt. Urine diminished, great thirst, and diarrhoea, with white stools for some days. Cap. L. L. gtt. xx. h. f. Cap. crem. tart. unc. fs. dissolut. mane. 19th, Purging stopt since the opiate. Belly bound, and urine not increased. Swelling of the abdomen and feet diminished. 24th, Belly gently opened by the medicine. Sleeps none for cough and pains, for which we were obliged to repeat her opiate often. August 7. Belly almost in a natural state. Other swellings still abating. 10th, P. quick and low. Sickness and pain in her belly. The bark and wine ordered. Died on the 12th at night. This fatal issue seemed neither owing to the dropsy, nor to the evacuation produced by crem. tart. but to a preceding diarrhoea and palsy which then threatened her.

EXPER. IX. February 11. 1774. Francis Hardy, 60, a smith, and used to drinking, has been affected for six years with

with difficult breathing, cough, pain of his breast, sense of weight between his shoulders, and increase of his complaints when he lies on his back, or left side. Some time ago, his legs and body began to swell. A sensible fluctuation in his abdomen. Paucity of urine. Belly bound. P. 100. From a sensation of suffocation, when going to sleep, he starts up to an erect posture. Here anasarca, hydrops, and hydrothorax seemed to be complicated, and the case very dangerous. He was put upon a course of crem. tart. 14th, Belly rather loose. Legs and arms fallen. Little appetite; and he was allowed table broth and meat. 16th, P. 84, and weak; so I omitted his medicine, and gave him wine and cordials. 17th, He died. On inspecting the body, there was found about three pounds of fluid in the thorax, contained mostly in the right side, with some slight adhesions of the lungs to the pleura. The right lobe was found; but, on cutting the left, a good deal of pus issued out. The pericardium was much fuller of fluid than it ought to be. In the cavity of the abdomen, about six pounds of lymph were found. The liver was harder than usual; but no marks of scirrhus. The other vis-

cera were found. The immediate cause of his disease and death was the scirrhus and purulent affection of the left lobe, which did not allow the medicine time to produce its effects.

EXPER. X. March 4. John Farquhar, 60, about the beginning of January last, felt a pain in the region of the liver, especially on being pressed. His belly began to swell about the middle of the month. In the beginning of February, his legs became oedematous, one of which is excoriated, and discharges a thin fluid. He can scarcely lie horizontally in bed, and starts, for fear of suffocation, when going to sleep. Has not been able to lie on his left side for two months, as it occasions the pain, and difficulty of breathing. Feels neither weight, oppression, nor fluctuation in his breast. Cough dry. Belly bound. Urine of a deep colour, and diminished in quantity. P. 110, but not irregular. Has had nausea and vomiting these four days. Cap. crem. tart. unc. fs. &c. 7th, Purged gently. Urine considerably increased, and feels hot. Vomits sometimes. Pain of the liver increased, when he lies on the left side. 8th, Died this day, when raised up in bed,
and

and speaking as usual. In the abdomen, there was found about a pound of lymph; and the intestines adhered in some places to the peritoneum. The liver was considerably larger than natural, but not scirrhous. About 1-1 half pound of fluid was found in the right cavity of the thorax. The under part of the right lobe of the lungs, and the diaphragm and pleura contiguous to it, were much inflamed. Part of the pulmonary artery was ossified.

EXPER. XI. March 15. Alexander Walker, 18, weaver, was affected, two years ago, with oedematous swellings of his legs. In December last, they turned red and itchy. Within these three weeks, feels a pain, when coughing, in his right side. P. 100, and soft. Cap. crem. tart. unc. fs. &c. mane. 18th, Urine augmented, but belly not affected. The crem. tart. was increased to drach. vi. 20th, P. 120, belly open. Legs much fallen, and less discoloured. Urine much increased, and as limpid as water. Half of the salts taken in the morning, and half at night. 24th, P. 114, swelling of legs much diminished, and colour natural. Belly not so loose since the dose was divided. 27th, His legs,

legs, for these three days, have been of the natural size. 28th, Dismissed cured.

EXPER. XII. March 31. John Young, 22, has had a cough, and pain of his breast, for three years. About ten days ago, he was seized with severe pains in all his lower extremities, which went off on bleeding. After this, his legs and feet began to swell. Last night, he was seized with cough, dyspnoea, and spitting of blood. Urine not less. P. 170. Fiat venaes. ad unc. ix. April 4th, legs much swelled. Cap. crem. tart. unc. fs. quotidie mane. 7th, Swellings better. Belly loose, and urine increased. 13th, Oedematous swellings gone.

EXPER. XIII. Dec. 4. 1774. James Smith, 23, about October 29th, perceived his legs and abdomen begin to swell, with evident fluctuation, but without diminution of urine. Had taken jallap and merc. dulc. cort. Peruv. dec. Lusitan.; and his belly had been rubbed with ol. volat. without any good effect. Pulse regular. Cap. crem. tart. unc. fs. &c. unaq. mane. 11th, Was purged twice a day, for a few days, but not afterwards. Urine increased. Rep. crem. tart. ad drach. vi. 13th, Belly bound, and

and half an inch less in measure. Rep. crem. tart. ad unc. i. 20th, Belly bound, and urine in less quantity. Belly an inch less. Rep. crem. tart. ad drach. x. 26th, Belly always bound. Rep. crem. tart. ad unc. i. ss. Jan. 3d, Urine not increased. Belly fallen three inches. 9th, Belly increased to near its former size. Always costive. I was now obliged to change it for the squills, which were attended with no better effect. 17th, Being tapped, about 16 pints of a bloody fluid came off. A hardness was then felt in the left side of the abdomen. He was then put on a course of pil. merc. till his mouth was affected. But, on the 21st, his belly began to swell again. On the 8th, was dismissed not cured. Here the belly was constantly bound, and the urine not increased, though taking unc. i. ss. of crem. tart. a day. It had once reduced his belly three inches, which neither the squills nor mercury did.

EXPER. XIV. February 15. 1776. Janet Millar, 22, unmarried, after a fever, two years and a half ago, observed her belly begin to increase. She said that the tumor appeared first in her left side, and towards the bottom of the abdomen; that it was circumscribed, and gradually increased

creased for some months, before any swelling appeared on the right side. But no induration or circumscribed tumor could be felt ; and the fluctuation in the abdomen was evident. Her legs began to swell about ten months ago. Urine not diminished. Belly costive. Dyspnoea. P. 92, and rather weak. Menses regular. Cap. crem. tart. unc. fs. mane. 19th, The powders had no sensible effect. Rep. mane, et hor. 5ta, P. M. 21st, They produce no effect. Rep. ad drach. vi. bis in die. 23d, P. 110, Belly loosened twice or thrice a day. As she was feverish, we suspended the medicine. 25th, Rep. crem. tart. 28th, Belly bound, and colic pains. Injiciat. clyfma. March 9th, Salts do not purge her. Rep. crem. tart. ad unc. i. bis in die. 10th, The salts produced no effect. I now discovered that they had been given with only a gill of water. They were ordered to be dissolved in unc. xx. 11th, The salts now purged five times ; so I was obliged to diminish them to drach. vi. 16th, Urine not increased. Belly loose. Belly fallen near three inches altogether. 22d, Belly fallen about 4 1-half inches. 30th, Belly fallen six inches. After this the

the belly did not continue to fall; so we ordered dried squills, which she continued for twenty days, without any advantage.

EXPER. XV. March 4. David Bethune, 31, a sailor, on the stopping of a diarrhoea, which had lasted two years, perceived his abdomen to swell, about the 20th of December. After the use of some medicines, his belly fell. February 24th, from exposure to cold and wet, his belly and legs again swelled. Has now an evident fluctuation, dyspnoea, cough, with some viscid expectoration, little urine, great thirst, and a hydrocele. P. 114. Cap. crem. tart. unc. fs. bis in die. 8th, Purged once. Rep. crem. tart. ad drach. vi. bis in die. 9th, Not purged, nor urine increased. Cap. crem. tart. unc. i. p. jallap. gr. vi. bis in die. 10th, Had only two loose stools. Rep. crem. tart. cum P. jall. 11th, Remitted to the surgeons. Was tapped, and died that night.

EXPER. XVI. December 25. 1776. Ann Mill, 30, about eight days after delivery, perceived her abdomen begin to swell, and a fluctuation was now felt in it. Her legs are much swelled, hard, and elastic. Has orthopnoea, cough, pain in her breast,
less

less urine, and thirst. P. 80. Cap. crem. tart. unc. fs. quotidie mane. 29th, Purged generally twice a day. Urine increased. Left leg fallen in size. Breathes now easier in bed. January 2. Urine much increased. Belly and legs much less. Urine of straw-colour, with some sediment. 8th, Dismissed cured.

EXPER. XVII. February 10. 1778. Malcolm M'Culloch, 53, addicted to drinking, had, five years ago, a fever, followed by three relapses. His legs afterwards swelled and pitted, especially when he was exposed to cold and moisture. A month before he came in, was seized with dry cough, dyspnoea, and orthopnoea, tightness and pain of the breast under the sternum, sudden starting when going to sleep, as from suffocation. An evident swelling was observed in his breast, at the extremity of the first and second ribs, on the left side, where he received a stroke five years ago, and which still continues painful on pressure. Urine in natural quantity, but high coloured. P. from 64, to 68, and weak, but not irregular. Cap. crem. tart. unc. fs. quotidie mane, diss. in aq. font. unc. xii. 14th, Breathing a little

little easier, belly loose, urine increased, and very limpid. 16th, Legs less swelled. Breathing easier. 21st, Swelling of breast almost gone. Cough less. Urine pale, and much increased. 26th, Belly opened only every other day. March 3. all complaints gone, except a slight cough, which he has had for these five years. The salts were stopped, and some tonic pills were given. 11th, Dismissed cured. Thus this hydrothorax was cured in twenty-three days.

EXPER. XVIII. March 12. Effie Johnstone, 48, mother of twelve children, was affected for three years with cough and dyspnoea. Last October she was seized with pains in the left and inferior part of the abdomen. Within these three weeks her belly, loins, and legs, have swelled. Can lie easiest on the left side. Urine diminished. Thirst. P. 96. Cap. infus. Bacc. Junip. unc. iii. quater in die. 16th, Has passed 11-half pound of urine during the last twenty-four hours, which formerly she would not have done in three days. 18th, Swellings not decreased. I tried her with dried squills, which purged her, and increased her urine; but the swellings were

not diminished. April 1. cap. crem. tart. unc. fs. &c. mane. 5th, Legs less swelled at night. 11th, Swelling of legs at night entirely gone. Belly loose, and more urine. A preternatural swelling discovered in the region of the liver. 20th, Region of the liver less swelled and hard. Belly much fallen. 24th, Swelling of the abdomen gone, and no complaints. She was ordered chalyb. tartar. drach. fs. twice a day. 28th, Dismissed cured.

EXPER. XIX. March 16. Sophia Mack, 31, caught cold about three weeks ago, while taking purging salts. Two days afterwards, her legs, and then her body, began to swell; and she is now very anasarcaous. These complaints were attended with dry cough, much hoarseness, pain of her head, dyspnoea, nausea, thirst, frequent shivering, severe stitch in her breast, difficult lying on the left side, and P. from 70 to 80, and very strong. As these dropical complaints appeared to arise from a local pulmonary affection, or, at least, to be attended with a general inflammatory state, which is uncommon in this disease, venaesection, mucilaginous pectorals, and ol. ricini, were ordered. The
blood

blood was covered with a thick inflammatory crust. 19th, P. 76, and still strong. Spits some blood. Breathing difficult. Repet. venaef. ad unc. ix. Blood as before. Haemoptoe gone. 21st, Legs less swelled. Breathing easier. Pain in both sides when she coughs. Rep. venaef. ad unc. viii. 22d, P. 72, and yet too strong. Blood still with an inflammatory crust. Seized last night with severe stitch in her left side, palpitation and constriction at her breast, and severe dry cough. Rep. venaef. ad unc. viii. Rep. ol. ricini. 23d, P. 72, and softer. Blood still with an inflammatory crust. Breathing easier. Swelling of the legs and body better. Cap. crem. tart. unc. fs. quotidie mane. 27th, Belly rather bound. Cough severe. Pulse still strong. Rep. venaef. ad unc. viii. 28th, Pain of her breast gone. Lies on the left side, as easy as on the right. Hoarseness much better. Blood still fizy. Legs less swelled. More urine. 30th, Spit a little blood. Rep. venaef. ad unc. viii. Blood as before. Feels herself easier and lighter. April 3. Severe cough during the night. Pulse still strong. Rep. venaef. ad unc. viii. Blood with less inflammatory

tory crust. 5th, Her nose bled some this morning, and the bleeding would have continued, but she stopped it. She went out this day almost well. This case is curious, as it shows, that this disease may be, sometimes, acute and inflammatory; and that bleeding, seldom admissible, does then become the principal remedy. The cure here may be attributed more to the six bleedings, after each of which she was sensibly relieved, and the swelling decreased, than to the crem. tart. I was directed, chiefly, by the strength of her pulse. This dropsy arose from an inflammatory obstruction in the lungs, in which the crem. tart. was undoubtedly of some use.

EXPER. XX. Dec. 5. Jean Robinson, 33, being delivered of a child, five weeks ago, was seized, a few days afterwards, with a violent pain in the region of the liver, attended by a pain in the right shoulder, cough, and dyspnoea. About eight days afterwards, these symptoms abated; but she perceived her legs and face, and then her belly, to swell. Urine defective, and high coloured. Thirst. P. 88. She was put on a course of crem. tart. unc. fs. each morning, which was by degrees increased to unc. i.

The

The swellings went off gradually ; and, in 15 days, all her complaints were gone. Even the obstruction of the liver was cured.

Thus I have faithfully stated the facts, with every circumstance which appeared to me to belong to the disease, or remedy, of which we are treating. It now remains to draw some conclusions from the preceding experiments.

1. Of 20 hydropic patients, 13 were cured, and 7 were not cured of their hydropic symptoms ; that is, certainly, a very great proportion of the successful to the unsuccessful cases, in a disease generally so very dangerous. A remedy, which cures near two thirds of those labouring under this disease, where Nature lends but very little assistance, is a valuable medicine. Though this distemper is very subject to relapse, yet it has happened to none of them, so far as I know.

2. Let us consider them in detail. The anasarca is complicated with 18 of the 20 cases. Of pure anasarcaous cases, there are 7, of which 5 were cured, and 2 were not. Of 12 cases of ascites, 7, of which only 2 seemed pure, were cured, and 5 were not.

This

This is more than the half, and a great proportion in a species of dropfy, which is more difficult to cure than the former. Of 4 in hydrothorax, 2 were cured, and 2 were not. These were all complicated with the other species. This still seems to me a very great proportion, in a species the most incurable of the three. Another hydrothorax was cured, in private practice, with the crem. tart. It follows, therefore, that we may depend most on its success in the anasarca, next in the ascites, and less in the hydrothorax than in the other two.

3. We cannot but observe, from the cases, that the disease was mortal in the 3 eldest, 2 of whom were of 60, and the other 70 years old. This will naturally be thought owing to the evacuative and debilitating effects of the remedy. There is some reason to think so in Exper. VIII. where there was a previous diarrhoea. But it is more probable that it was not, as the medicine neither purged her, nor increased her urine. It is rather to be attributed to the causes of the disease being more difficult to remove in such advanced age. Besides, in Exper. VIII. where the patient was 70, there were some paralytic symptoms; in
Exper.

Exper. IX. there was matter in the lungs ; in Exper. X. there was an ossification of the pulmonary artery.

4. In Manghini's cases, the disease was recent. Many of our present cases were not only of some months, but of some years standing. In Exper. II. and XI. the anasarcaous swellings had continued for two years. In Exper. VI. the ascites had subsisted for three years. In Exper. XVII. the oedema of the legs had lasted for five years, while the hydrothorax was of a later date. The older the disease, the more difficult, certainly, the cure becomes. This view of the crem. tart. is very favourable for it.

5. Let us state the visible effects of this medicine. It seems once or twice to have excited vomiting. But that is so rare an effect, that it may be attributed to the disease, rather than to the medicine. It generally purges twice or thrice a day with ease. But, in many of the cases, it was not purgative, as in Exper. I. II. III. VI. XIII. XIX. In some of them, it seemed rather to have bound the belly, as in Exp. IV. VI. VIII. XIII. In the two last, the patients had, when they began the crem. tart. even a diarrhoea ; and it diminished afterwards.

afterwards. So the purgative quality of this medicine seems to be very weak. When it does not loosen the belly, it sometimes produces slight colic pains. It generally increases the quantity of urine, though not near so much as the *bac. junip. squills*, &c. In many, the urine was not sensibly, or but little increased, as in Exper. II. III. VI. VIII. XIII. Manghini observed, that the urine was thick, bilious, and sabulous. The urine of our patients, two cases excepted, was always paler and clearer than natural. In some of them, it seemed neither to affect the belly nor kidneys, as in Exper. II. III. XIII. XIX. and but very little in Exper. IV. VI. VIII. During the use of it, the appetite became better, the thirst less, and the heat and fever diminished. The patients were a little leaner at the end, but not so much as Manghini describes.

6. If we can discover the mode of its operation, we shall more certainly secure its success. It seems to act, 1. As an evacuant, for it is purgative and diuretic. Purgatives and diuretics cure: Much more must a medicine which excites both evacuations. By stimulating these excretory
organs,

organs, it determines more fluids to them, and increafes the evacuation. The veffels being thus emptied, the abforption from the cavities is increafed to fill the veffels again. 2. As a deobftruent, which I confider as its principal mode of operation. We have found, that ox. colchic. bacc. junip. &c. are much ftronger diuretics, but much weaker antihydropsics, than crem. tart. We have feen, that it often neither increafes urine nor ftool, and yet that it cures. Tho' we have many proofs, a fingle inftance only is fufficient to fhew, that it can operate in other ways than by evacuation. It is well known, that obftructions of the different thoracic and abdominal viscera, efpecially of the liver, are the general caufes of dropfy. Deobftruents, which remove this caufe, muft have the greateft fhare in the cure. It appeared powerfully deobftruent in Exper. XX. I have long looked on this as the principal operation even of all diuretics and purgatives, as they all poffefs this quality, efpecially the draftic purgatives. They ftimulate the obftructed veffels to quicker motion, fo act as powerful aperients. All vegetable acids, of which tartar is one, are deobftruent. Vinegar

has cured many dropfies. The leannefs that follows the long ufe of this medicine, is a proof that it acts in this way. It appears from the cafes, that this medicine is more fuccefsful in the warm weather of fummer, than in the cold of winter. But, in winter, it muft prove more diuretic, if not more purgative too; in fummer, more deobftruent; which obfervation ftrongly fupports my opinion. This mode of operation appears to me more powerful, extenfive, and ufeful, than its evacuant quality.

7. Let us next view the quantity to be given. I have generally begun with unc. fs. exhibited in the morning, at different times; fo that the laft dofe may be taken an hour before breakfast. The medicine was gradually increafed, and in one cafe to unc. ii. a day. The dofe ought generally to be regulated by the effects on the belly, which fhould be open during the courfe. When unc. i. a day is given, and excites purging, one half fhould be exhibited in the morning, and the other in the evening, that it may not run direclly through the inteflines, but that it may enter the habit. If it is to act as a deobftruent, it muft neceffarily enter the vafcular fyftem.

8. The manner of exhibiting it feems to be

be of great moment. I have always given it dissolved in water. As it is very insoluble, it takes, at least, twenty times its quantity of cold water to keep it dissolved. It has been generally given, by others, in the solid form of an electuary, as a quantity of liquid, sufficient to dissolve it, was thought to be improper. But the former method seems preferable. 1. Water appears medicinal, and a cure for dropfy. The patient has a constant demand for drink, which, if hurtful, is perhaps the only appetite of the deceitful kind which occurs in diseases. I have known several cured by drinking Dunse water plentifully, even after it had been carried home, and so no better than common water. Dr Baker has given us many cases, where cold water, in great quantity, brought on a flow of urine, and cured the dropfy. 2. If given in a solid form, it cannot find fluid in the intestinal canal sufficient to dissolve it; so it cannot act. Of this, a most convincing proof occurred. In Exp. XIV. I was surprised that the ounce of cr. tart. had produced no sensible effects. On inquiry, I found that the nurse had only put three or four ounces of water to it. It was ordered to be dissolved in the due quantity.

quantity. It then purged five times; so that afterwards we were obliged to diminish the dose. If not dissolved, it cannot enter the vessels; so cannot act as a deobstruent. Besides, when not dissolved, it is apt to produce colic pains, as in that experiment.

9. The medicine must be continued until the disease is gone, and for some days afterwards. Manghini says, that it often produced no sensible effects for 20, nay, even for 40 days. Its effects are generally visible in two or three weeks. If not then, few can be persuaded to try it longer. In some of the present cases, if continued, it might perhaps have succeeded. But the continuance of it, for a very long time, becomes disagreeable, especially when not attended with very evident success.

10. I generally order friction by means of the flesh-brush along with it. This assists the circulation through the veins, hence removes one cause of deposition. It also promotes the absorption of the lymphatics; hence removes another.

11. As dropsy arises from a laxity of the vessels, and as this course must weaken, it appears prudent, after the cure, to give tonics,

nics, as bark, gentian, steel, &c. for some days. These will restore the tone of the fibres, and prevent, as far as we can, any fresh deposition.

SCILLA EXSICCATA.

The squills have been long used in the cure of the dropfy. Dioscorides and Pliny recommend them. The moderns trust much to them. In exhibiting them, in the common method, I seldom met with success. But, in adhering tenaciously to a medicine consecrated by long experience, it produced at length violent vomiting, attended with the ejection of much liquid, tho' none was drunk, and with some other singular circumstances. After the fit of vomiting was over, the hydropic swellings and symptoms were much abated, or entirely gone. This accidental discovery suggested a method of using this medicine, which I alone, as far as is known to me, have yet practised, and with considerable success. The facts shall first be stated, that every one may judge for himself.

EXPER. XXI. May 24. 1769. Thomas Keir, 45, a taylor, has been affected,
for

for four years, with dyspnoea, cough, uneasiness when he lies on his right side, the sensation of something moving in his breast when he turns in bed, and pain and swelling about the liver. These symptoms continue; and, about six weeks ago, an anasarca and ascites appeared, with sensible diminution of his urine. He had used garlic, for six weeks, in vain. He first got oxym. colchic. drach. ii. which were gradually increased to drach. x. each day. It kept his belly open, and sometimes augmented his urine. June 10. As the hydropic swellings were no better, it was changed for Pulv. scill. exsic. gr. iii. sal. nitr. P. nuc. mosch. aa gr. x. syr. q. s. M. f. bol. Cap. cras mane, et repet. quotidie. This produced pain in his stomach, vomiting, purging, and increased his urine. 13th, Swelling of belly and legs much fallen. I reduced the squills to gr. ii. and gave an opiate at bed-time. 15th, Severe fit of vomiting each morning after his bolus, during which he throws up much bile, and watery fluid. His belly and legs quite fallen. Cough easier. Breathing relieved, and can lie on his right side. As the waters had gone off so quickly, and he complained

plained of weakness, his belly and legs were bandaged, and some tonics were ordered. After this his urine continued in great quantity, though the squills were stopt. July 4. Dismissed cured. This patient continued well for six months, at the end of which time he was again seized with similar symptoms. I was told that crem. tart. was again tried with him, and that it increased his urine; but he died. When opened, his lungs adhered almost wholly to the pleura; and, in the right cavity, was found a pint of fluid, which must have pressed much, as the lungs adhered almost wholly. We found, on the right lobe of the liver, pointing to the ribs, two contiguous tumors of a white colour. Their coats were as hard as cartilage, and they contained a thick steatomatous matter. They would have weighed about half a pound. The gall-bladder was moderately full. No fluid in the abdomen. Here was an anasarca, ascites, and hydrothorax, as the symptoms showed. These were all carried off in a few days, by the emetic power of squills. The hydrothorax recurring, and proving mortal, the inspection

tion of the body made the preceding disease more certain.

EXPER. XXII. May 30. Isabel M'Donald, 60, perceived her legs first begin to swell, then, about fourteen days ago, her belly, which is very big, and an evident fluctuation is now felt in it. Respiration difficult, especially when she lies on her left side. Little urine. Much thirst. Pain in both hypochondriacae, but most in the right, which is much fuller than the left. R. P. scill. exsicc. gr. iii. &c. Cap. quotidie mane. June 1. gr. i. more of squills was added. 4th, The bolus had purged, and increased her urine. Vomited much last night. The squills were reduced to gr. iii. 6th, Vomited and purged frequently. Urine much greater in quantity than her drink. Legs and belly much fallen. 17th, Vomited frequently for some days. Swellings almost gone. Her belly and legs were bandaged. Some tonics were ordered. 28th, Pain about the liver gone. Can lie equally well on both sides. July 18. Dismissed cured. This was a bad case, from her age, and weakly habit; but the disease was recent. It is probable, that she had an hydrothorax. The pain and

and fullness in the right hypochondrium, show that the liver was affected. The squills increased all the evacuations violently, and carried off the waters in seventeen days.

EXPER. XXIII. July 11. Roderick M'Kenzie, 18, after exposure to cold, was seized with cough, and pains in the right and left hypochondria, for which he was bled. About the 1st of May his belly began to swell. Urine high coloured; but not diminished. Belly much swelled, and an evident fluctuation. P. 90. R. P. scill. exf. gr. ii. &c. Cap. quotidie mane, et h. f. 13th, No nausea nor purging. Urine increased, and he sweats. 15th, Belly much fallen. R. P. scill. gr. iii. &c. Cap. u. a. 17th, Vomited and purged; but urine not increased. Belly much less. 18th, Vomited much this morning, during which his P. was 48, and weak. Cap. statim L. L. gtt. xxv. Vomited after this dose. 19th, Belly of a natural size, and has fallen about nine inches. P. 58. No increase of urine. No pain now in the hypochondria. Tonics were then ordered. 22d, As he complained a little of the pain in the hypochondria, the squills were again

prescribed, which excited vomiting on the 24th, and generally purged him. The squills were given up on the 25th, and the tonics were continued. Afterwards, he got the infusion of bacc. junip. which proved much more diuretic than the squills. Aug. 6th, Dismissed cured. This disease arose evidently from an obstruction in the liver, as it appeared before the ascites. Gr. ii. of squills increased his urine, but no other evacuation; and the belly diminished. On giving gr. iii. he vomited often during a whole day, threw up much fluid, and purged some. His cure was chiefly owing to vomiting, as the evacuation by stool and urine was not great.

EXPER. XXIV. July 7. Richard Donaldson, 23, a negro, fourteen days ago, observed, without any cause, his abdomen to swell. It has gradually increased, with obscure fluctuation in it. No pain nor hardness about the liver. Urine diminished. Drought. Belly rather loose. Pulse natural. R. Mass. pill. scill. unc. fs. pill. merc. drach. fs. M. divid. in pil. pendent. gr. v. Cap. pil. vi. h. f.; et post dosim L. L. gtt. xx. that they might, with more certainty, enter the habit. In a day or two, he got the

pills in the morning too. On the 10th, 11th, and 12th, vomited after each dose, and his urine was increased a little. Belly less. He was ordered to take only four pills night and morning. 15th, Urine not increased, and belly not fallen. The number of pills were again augmented to six. 16th, Belly more swelled, and urine in less quantity than natural. Pills omitted. R. P. scill. exsic. gr. iii. &c. which were afterwards increased to gr. iv. This continued to purge only, and to expel much wind, which reduced, for the time, his belly; but it soon returned to its usual size. 20th, As he complained of weakness, the medicine was suspended for three days, during which he got oxym. colch. to drach. x. the last day, without any sensible effect. 23d, As his strength had returned, he again got dried squills, morning and evening. They increased his urine, and kept his belly open. On the 28th, he vomited, and his belly became less. Cap. L.L. gtt. xxv. h. f. 29th, Vomited for many hours, and threw up more than 12 pints of fluid; but did not purge, or pass more urine. During the vomiting, his pulse was 40 in a minute. At night, got the opiate, and had his belly bandaged.

ged. 30th, P. 76, Belly of natural size. Got tonics. August 12. Urine has been in the natural quantity. Dismissed cured. Here the belly never fell, but after a fit of vomiting.

EXPER. XXV. July 23. 1770. Allison Bell, 50, labouring under cough and dyspnoea for twelve years, was affected, three weeks ago, with anasarcaous swellings of her legs, and some feverish symptoms. An ascites appeared some days after the fever retired. Evident fluctuation. R. P. scill. exsicc. gr. iii. &c. 26th, Urine increased. Rep. bol. h. f. et mane. 28th, Urine much increased. Vomited last night, and this morning. Legs and belly less swelled. 29th, Vomited much, and purged last night. Urine increased. Belly and legs more fallen. Took the bolus, generally, but once a day, in the morning; and got Ther. Andr. scrup. i. opii gr. fs. h. f. August 1. swellings totally gone. Began to take tonics. 11th, Dismissed cured.

EXPER. XXVI. February 11. 1774. Janet Hays, 17, felt a swelling in her abdomen, about a month ago, accompanied with thirst, paucity of urine, dyspnoea, cough, which two last symptoms are much increased

increased when she lies on her left side.

P. 104. Menfes regular. R. P. scill. ex-
ficc. gr. ii. &c. 13th, No sensible effects.

R. P. scill. gr. iii. &c. 15th, Belly loose,
and urine not increased. Rep. bol. h. f.

et mane. 17th, R. P. scill. gr. iv. &c.
22d, Produces no sensible effects. R. P.

scill. gr. v. &c. 24th, Vomited after each
dose, last night, and this morning. 25th,

About an hour after last night's bolus, she
began to vomit, which continued frequent

during the night. Her nose bled a little.
Vomited again this morning after the bo-

lus. Has thrown up about two pints of
fluid. One loose stool. Urine not increa-

sed. Belly fallen about an inch. In the
evening vomited again about 1 1-half pint

of fluid. Stomach much pained, hard,
and seems swelled. During the night,

threw up about 1 1-half pint. Urine in-
creased. 27th, Threw up a pint this mor-

ning. Abdomen softer and less swelled.
March 2. Belly fallen about six inches al-

together. Vomited this morning, and sto-
mach still pained. 3d, Vomited. Belly

fallen an inch more since yesterday. 6th,
Vomited. P. 58. Quantity thrown up

about 1 1-half pint. Belly bound. 9th,
Vomits

Vomits at times. Belly of the natural size. P. 58. when the day before it was 80, and the day after 90. Put on a course of tonics, and dismissed cured. Here the paroxysms of vomiting were frequent, as they continued for sixteen days, and but a small quantity of fluid evacuated at once, attended with pain of the stomach, and a slow pulse.

EXPER. XXVII. Feb. 10. George M'Alister, 44, was affected, six weeks ago, with swelling of abdomen, evident fluctuation, decrease of urine, and pain in the region of the liver when pressed, which hinders him to lie on his right side. P. 94. R. P. scill. exsic. gr. iii. &c. cap. mane. 18th, Belly opened. Urine not increased. Ordered an opiate at bed-time, and some wine. 23d, Urine increased. Weak. Belly somewhat fallen. 28th, P. 116, and weak. Tapped, and 24 English pints drawn off, two thirds of which coagulated. Complained afterwards of a great pain in the region of the liver, which part was hard and tumified. Died that night. On opening him, his liver was very much enlarged, and scirrhus. The mesenteric glands in the same state. The squills produced no vomiting

vomiting here, and the ascites was but little diminished.

EXPER. XXVIII. Feb. 14. 1776. David M'Kenzie, 41, a weaver, of a scorbutic habit, has been affected, after cold, for eight weeks past, with swelling of the abdomen and lower extremities, paucity of urine, dyspnoea, and cough. P. 90. Had been dismissed from the hospital three months before, cured of the same complaints by crem. tart. and dried squills. R. P. scill. gr. ii. &c. 18th, Squills by degrees increased to gr. iv. and given morning and evening. This produced no sensible effects, except making his belly a little more loose. The abdomen has fallen an inch in size. 26th, Belly rather bound. Squills increased to gr. v. 28th, Abdomen fallen two inches. Urine increased. Belly loose. Squills increased to gr. vi. March 6. Squills increased gradually to gr. xii. and produce scarcely any visible effects. Belly fallen altogether about four inches. 7th, Vomited this morning, and purged often. 10th, Took his bolus last night, with addition of gr. i. of tart. emet. Began to vomit about two hours after, threw up two pints, and P. at 56. Belly fallen an
inch.

inch. Swelling of legs quite gone. 23d, Squills by degrees increased to gr. xviii. twice a day, without any very evident effect. Hydropic symptoms gone. Got tonics. 28th, Dismissed cured. This case is singular, from the great quantities of the squills taken, and the gentle evacuations which followed; yet the size of the belly diminished.

EXPER. XXIX. March 27. Farquhar M'Donald has an ascites, of nine years standing, with evident fluctuation. It was preceded by pain, and swelling in the region of the liver. Pain in the left hypochondrium. Urine in small quantity. P. 72. R. P. scill. gr. ii. &c. h. f. et mane. April 6. Belly fallen half an inch. Stools and urine increased. R. P. scill. gr. iii. &c. 9th, Belly a little less. Sick after the medicine. R. P. scill. gr. iv. 16th, Squills increased to gr. vi. which purge only. 20th, Squills increased to gr. vii. 26th, Left the Infirmary. Here the squills purged, but did not vomit; and, though he had continued them for a month, yet he was not much relieved.

EXPER. XXX. Jan. 9. 1777. Agnes M'Kenzie, 17, about a month ago, after
exposure

exposure to cold, was seized with pains, and swelling of the abdomen. Evident fluctuation. P. 100. R. P. scill. gr. ii. &c. cap. h. f. 12th, Purged six times. Rep. bol. adend. opii gr. fs. 12th, Purged often. Belly fallen two inches. 22d, Still much purged. Belly not fallen. Cap. tart. emet. gr. ii. pulv. ipecac. gr. v. This taken, without drinking any, made him throw up three pints of fluid. The squills were obliged to be given up, as they purged so much, though even gr. i. only was exhibited. The crem. tart. was afterwards tried, for 16 days, without effect. Here the nerves of the intestines were very irritable, but not those of the stomach.

After stating the facts, it remains that we draw some conclusions from them.

1. Of 10 hydropic patients, 7 were cured, in each of whom the squills produced vomiting, and 3 were not cured, none of whom had any vomiting. The contrast here, between the emetic and other evacuative powers of this medicine, is very apparent and decisive. In these 3, the other evacuations were increased, but no vomiting produced. All the 10 patients laboured under ascites. 4, of the 7 cured,

A a a had

had anasarca; 3 of them had hydrothorax; 2 of them had both anasarca and hydrothorax. In all the 3 not cured, there was a pure ascites, 1 of which was of 9 years standing. In Exper. XXVII. where the case proved mortal, there was an incurable scirrhus of the liver and mesenteric glands. These facts are strong in favour of the emetic method of using the squills above the other evacuative methods, which are alone used. Dr Ruffel, de Tabæ Glandulari, desires us to shun vomiting; but we have found it the speediest method of cure. This method appears most successful in summer, as the first 5 patients were all cured in that season. Of the latter 5, in winter, only 2 were cured.

2. The visible effects of this method are the following: The squills, at first, purge, and increase the urine, which are their natural effects, and sometimes reduce the hydropic swellings a little. In a few days, sooner in some, later in others, a nausea and vomiting comes on, which is often severe, and attended with an acute pain in the stomach. During this fit, the pulse is remarkably slow. I was amazed when I discovered this symptom at first, and was
afraid

afraid of danger, which made me give L. L. and cordials, to stop the vomiting; but have since found it a constant effect of that state, and attended with no danger. Does this arise from the brain and heart being defrauded of blood, as the pressure is removed from the aorta descendens? or from the pain of the stomach, as the slowest pulses with which I have met have been accompanied with pain? It is not easy to explain it. During the vomiting, much fluid is thrown up, and the abdomen falls in proportion. Sometimes, a pint or two only, sometimes 12 pints, are evacuated, in one paroxysm. In this way, the hydropic symptoms disappear, and take from 2 to 16 days before that happens.

3. This method cures, 1. By evacuation. The squills stimulate the nerves of the stomach, as appears from the pain attending the fit, and excite vomiting. The action of the exhalant vessels of the stomach, thus increased, secrete the lymph in great quantity. The vascular system being emptied, the lymphatics absorb from the cavities more plentifully, especially from the abdomen, where they are assisted by the convulsive motion of the abdominal muscles.

cles. In this way the hydropic waters are evacuated. 2. By the deobstruent power of the squills. They are known to be a powerful remedy in this way, and act by stimulating the whole vascular system. They act in this way, perhaps, for some days, before the vomiting commences. The pains and obstructions in the liver disappearing, after this method has been carried on for some days, are a proof of it. 3. By the deobstruent action of vomiting, arising from the previous nausea, and subsequent convulsive motion of the diaphragm, abdominal, and indeed of all the muscles of the body. Its greater success in summer than in winter, is a strong proof of the deobstruent effects of this method.

4. The quantity used for a dose is various, according to the constitution. Three or four grains, twice a day, were generally found sufficient. I have given eighteen grains, in peculiar habits, without success. When the squills were first prescribed, it was with a design to excite urine; so a little nitre was added, and nutmeg, to correct them. The same formula has always been retained since, though perhaps this addition is not necessary.

5. The

5. The waters disappeared in some of the cafes so suddenly, that I was afraid of the same bad effects as follow the paracentesis ; I therefore thought it right to order a bandage to the belly, and tonic medicines, as bark, steel, and bitters, to brace the system.

ULCUS PERPETUUM.

In the anasarca, where the fluid is collected in the cellular membrane, I prescribe issues, with great success. Incisions were used by the antients ; and this method of cure has been much followed by the moderns. Asclepiades is the only one amongst the antients who recommends issues in the anasarca ; but none of the moderns, so far as I know, have as yet used them. My first trial was not altogether voluntary, but the effect of compulsion.

A young lady had got, during a year, a great variety of medicines for an anasarca, under which she laboured. She put herself under my care, but with this express condition, that she was not to swallow any medicines. She was swelled to the greatest degree I had ever seen. In the morning, scarce a feature of her face could

could be distinguished ; her legs were as much swelled at night. My only resource was in a cuticular drain. An issue, therefore, was put in each leg, and a seton in her neck. The matter was, for some days, thin ; afterwards it turned thick. In six weeks the swelling was evidently less. Friction, country air, and exercise, were ordered. Her size decreased gradually, and in eight months she was perfectly well. This became a leading cure, which I afterwards followed.

EXPER. XXXI. May 14. 1770. Janet Ogilvy, 26, after cold, began to swell, about two months ago, and her legs are so tumified in the evening, that she is afraid they will burst. Her belly is swelled, but no fluctuation can be felt. Her whole body is oedematous, especially her right side, on which she always lies. Has a severe cough, and constant, short, and difficult breathing. Belly loose. Menfes regular. She had got many vomits, jallap, merc. dulc. with rhubarb, haust. salin. decoct. diuret. ; but all in vain. Her legs had been punctured six days before ; and the matter which came from them was very thin. Fiant fonticuli duo, unus inter

ter scapulas, et alter in tibia dextra infra genu. R. Pil. ex allio gr. xxv. pro dos. Cap. mane et vesp. 16th, Pain of legs easier. 20th, Issues begin to run. Pills purge her. Swelling of face abated. I changed the former for some tonic pills of extr. of bark, gentian, and lim. ferr. 24th, No swelling above the knees. June 3. Cough and difficulty of breathing better. Swelling less. 14th, Dismissed cured. I attributed the chief part of this cure to the issues, as the urine was never increased.

EXPER. XXXII. December 21. 1774. John Hay, 52, shoemaker, after drinking freely, perceived a swelling in his feet and ancles on the 8th of the month, which soon spread over all the body. His loins and belly, externally, are much swelled. Urine less. Breathing difficult in bed, or on motion. P. 70. He had been bled, got physic, and had been once sweated. Fiat fonticulus unus, in utraque tibia, infra genu, per lanceolam. Cap. pil. ex allio drach. ss mane et vesp. 24th, Urine increased to almost double. 26th, Body less swelled. January 3. Ancles fallen an inch. No swelling above the knee. A thick matter runs
from

from the issues. 8th, Swelling of legs almost gone. Issues discharge well. 17th, Swelling gone. Got some tonics. 26th, Dismissed cured. The pills had some share in this cure.

The effects of issues, therefore, appear to be strong in the cure of anasarca, and, from Exper. XXXI. preferable to incisions, which soon heal up, and must be renewed, to which few patients will submit; whereas the issues continue long open. I have used them often with success, and never saw any disadvantage from them. In some cases it has been thought, that they have even evacuated the fluids from the thorax and abdomen. By these drains we only imitate nature, as the skin sometimes bursts, and a crisis is performed this way. As the whole cellular membrane communicates, so the whole part affected is emptied by issues. Perhaps not the 1-50th part of what is evacuated is seen, as the thinnest part evaporates. The emaciation of a member, from an issue, is a proof of this.

S E C T. XVIII.

Experiments upon some Remedies used in the Amenorrhoea.

There is no disease which appears more frequently, in the clinical ward, than the amenorrhoea, either in a simple, or in a complicated state, as the cause of a multitude of other disorders. We have, therefore, much opportunity to make improvements in curing it. In no disease is the cure, by the common methods, more precarious or uncertain. To see how frequently the old methods fail, is one step towards the discovery of some new and useful remedy.

How often chalybeates disappoint us, every practitioner must have felt. With me they have seldom or never succeeded. I have always found them more useful in diminishing this evacuation, when too great, then in restoring it, when deficient.

I next expected to have found more success from the use of the tinct. helleb. nigr. as it was so warmly recommended by one of such extensive practice as the late Dr Mead.

He says of it, “*Vix unquam spem fefellisse meminerim.*” If it does not produce the menses, “*Sanguis per alias vias propulsus fuerit, unde clarissime constat, quanta vi sanguinem propellendi polleat ista medicina.*” After such encomiums I had great hopes. But, on trying it in nine or ten cases, it succeeded once only, though I gave it to the length of four tea-spoonfulls a day, when Dr Mead thought that two were sufficient.

COMPRESSION OF THE CRURAL ARTERY.

Dr Hamilton’s proposal, in the Ph. and Lit. Essays, vol. ii. of producing a temporary plethora in the uterus, by compressing the crural artery, so as not to stop altogether the circulation, seemed to me worthy of attention, especially as it had succeeded, when tried by him. There was one obvious objection to it, that young ladies would never submit to this operation, as a surgeon behoved to conduct it. It was amongst the commonality that this method was to be tried and rejudged. As this has not yet been done, so far

far as I know, I shall relate the experiments which have been made.

EXPER. I. June 26. 1769. Elizabeth Graham, 15, laboured under an emanfio menfium. The arteries in both thighs were compreffed during an hour, by the tourniquet, which was then obliged to be removed, as her thighs were difcoloured. During the compreffion, fhe felt a vertigo, and a pain in the lower part of the belly, and in her back. 28th, It was tried a fecond time, and the fame fymptoms attended it. 30th, It was applied again. P. 108 before the application. An hour afterwards, during the compreffion, P. 100, and of the fame ftrength and fullnefs. It produced great headach, difficult breathing, pain in her ftomach, and violent pain in the lower part of the belly that ftretched to the back. But it had no fuccefs.

EXPER. II. June 9. Jean Manfon, 22, obftructed for two months, and affected with tremors, and hylterical fymptoms, had been bled, vomited, and got p. rutae, which removed the hylterical complaints, but not the amenorrhoea. The iliac arteries were compreffed for an hour, which produced vertigo, dyfpnoea, and pain
in

in the back. After the compression was finished, she felt a pain and weight about the uterus. Pulse not altered. It was afterwards applied twice with the same effects. 14th, P. 130, and she complains of dyspnoea. After this she was cured by pulv. fabin.

EXPER. III. April 5. 1775. Margaret Neilson, 31, obstructed for 8 months, is affected with nausea, cardialgia, vomiting, colic pains, &c. At 8 P. M. when her pulse was 82, the tourniquet was applied. Five minutes after the application, she complained of vertigo, thirst, numbness and coldness of the right leg, which alone was compressed. 15th, P. 80, moisture on her head, body, and arms. Vertigo gone off. 30th, P. 78, nausea, with pain and tension in the region of the uterus. Pain in the back and upper part of the thigh. An hour afterwards, P. 78, sickness gone. Moisture continues over all her body, except on the lower extremities. Pain in the back, and inferior part of the abdomen. Numbness of the compressed leg and thigh. 6th, The same effects followed its application. 7th, Artery compressed this night. P. 84. Half an hour after

after its application, P. 78. Rather more sickness and thirst. Pain of head and stomach next day. Seven days afterwards she was bled, and the menses appeared.

EXPER. IV. April 3. Margaret Bowie, 20, of a florid complexion, has had an amenorrhoea for two months. Eyes and fauces inflamed, and headach. Two or three weeks before this, had been twice bled. At 7 P. M. when her P. was 98, the tourniquet was applied to the left thigh. Half an hour afterwards, P. 89. Complains of vertigo, headach, nausea, thirst, pain about the uterus, similar to that which precedes the menses. The compressed leg was cold, while the other had a natural heat. Pulse in the ham was scarcely to be felt. These complaints about the uterus, and thirst, continued all night. The menses appeared on the 6th, and remained for four days, in greater quantity than usual. Their appearing so soon after compression, leaves no doubt of their being produced by it.

EXPER. V. Jan. 5. 1776. Christian Bay, 26, has been affected, for three months, with an amenorrhoea, attended with flatulency, pain of the head, stomach, and back, vomiting, and ischuria. The ligature was
applied

applied at 8 P.M. when the P. was 96. In half an hour, the P. was 120, and she felt sickness, and pains over the whole abdomen. An hour afterwards, P. 96. 6th, It was applied again. In half an hour, pain in her stomach; in an hour, sickness, and pain in the uterine region, were felt, as before the menses.

EXPER. VI. Nov. 23. 1778. Elizabeth M'Kenzie, 25, has been affected with amenorrhoea for six months. The tourniquet was applied to each thigh. About ten minutes afterwards, she complained of a pain in the uterine region, such as she used to feel before the menses appeared; and likewise of headach, dyspnoea, and nausea. The nurse said, that, after the application was finished, she found the urine bloody; but no menses appeared. It was applied again, and her pulse increased fifteen beats in a minute. She was cured by the pulv. fabin.

This application has, therefore, succeeded in one case only out of six, in which it was tried. But this is too small a proportion, and not sufficient to support the character of any remedy. From the above described effects of compression, it has the strongest appearance of loading the uterus
with

with blood. From the sensations of the patient, it produces the same effects in the uterus, as the approach of the menses. It has every appearance in its favour ; yet it did not succeed. The uterus, I imagine, is oftener in too plethoric and inflammatory a state, when this remedy will hurt, than in a state of inanition. The good effects of venesection, especially in the vena saphaena, of pediluvium, and of purgatives, are strong proofs of this. From its effects, it would seem to be most proper in cases of inanition and debility, as it can produce a local, without a general plethora ; and yet we must, at the same time, freely own, that, in the only case where it succeeded, the patient was plethoric and inflammatory, which contradicts our reasoning.

VENÆSECTION.

Bleeding often succeeds in curing the amenorrhoea.

EXPER. VII. Dec. 6. 1774. Peggie M'Kay, 20, has laboured under this disease for nine months, attended by vertigo, flushing of the face, heat, pain of the head, temples, and back. P. 118, and strong.
Fiat

Fiat venaeſect. ad unc. viii. The blood was ſiſy. 7th, P. 124, complains of pal-pitation of the heart. 8th, P. 100, and ſtill ſtrong. Headach and pal-pitation eaſier. Rep. venaeſ. ad unc. viii. Blood rather more ſiſy. 9th, Menſes appeared, and continued until the 12th.

EXPER. VIII. Feb. 29. 1775. Mar-garet Haig, 23, of a ſanguine habit, ſub-jected to hemoptoe and hyſteria, after a fever in November, had the menſes in very ſmall quantity, and at very irregular times; and ſhe complained of nauſea, hiccup, dyſ-pnoea, thirſt, cough, and pain in the ſide. P. about 100. Fiat venaeſect. ad unc. x. Blood in a natural ſtate. March 2. Pain in the left ſide. Breathing eaſier. Rep. venaeſect. ad unc. x. Blood very ſiſy. 4th, P. 106, and ſtrong. Pains eaſier. Rep. venaeſ. ad unc. viii. 6th, Menſes appeared, but ſtopped on the 7th. 9th, Menſes returned again, and remained un-til the 11th.

EXPER. IX. Margaret Neilſon, Exper. III. after trying rub. tinct. pulv. ſabin. com-preſſion of the crural artery, and tinct. helleb. nigr. was bled for a ſevere ſtitch under the ſternum to unc. ix. on the 11th of April.

The

The blood was fizy. Menfes appeared on the 13th, and continued for three days.

I could give many more cafes ; but thefe are fufficient to fhew the utility of bleeding. The uterus feems often to be in an inflammatory ftate, and attended with fymptoms fimilar to other topical inflammations, as fizy blood, heat, rednefs of the face, ftrength of pulse, &c. In fuch cafes, bleeding is the principal remedy ; and, as it removes the plethoric ftate of the uterus, and relaxes its fibres, it gives the veffels full play ; fo that their own action overcomes all refiftence, and the evacuation takes place. But it is only in the plethoric, where it can be of advantage. It is of no great moment from whence the blood is taken. The vena faphaena will, perhaps, empty the uterus moft ; but then the quantity is with difficulty got from it, and cannot be fo well meafured.

S A B I N A.

The Sabine is infamous, for its ftong effects on the uterus. It is often ufed to procure abortion ; and is faid to endanger the mother by the violent hemorrhagy

C c c

which

which it occasions. In many parts, it is not allowed to be sold, but by the order of a physician. It has been much used to promote natural birth, and is reputed a strong emmenagogue, even when applied externally to the skin. These facts suggested the use of it to me. Its bad effects might be shunned without difficulty, by giving a small dose. Authors mention drach. i. as the proper quantity. I gave generally but drach. ss. and have found it useful and safe.

EXPER. X. Jean Manson, Exper. II. where the tinct. hellebor. and compression had in vain been tried, got pulv. sabín. drach. ss. twice a day. In four days, the menses appeared, and continued for two.

EXPER. XI. Janet Dallas, 28, was obstructed for six months, and attacked with headach, flatulence, acidity, indigestion, &c. P. 68, and rather weak. She had taken a vomit, elix. sac. and pills of lim. ferr. with extr. gentian. in vain, for ten days. Then she got pulv. sabín. scrup. i. bis in die. On the third day, the menses appeared.

EXPER. XII. Elizabeth Graham, Exp. I. in emanatio mensium, after trying lim. ferr.

ferr. tinct. helleb. nigr. compression of the crural artery, and electricity, in vain, got pulv. fabin. drach. ss. twice a day. She continued it for seven or eight days; and each dose raised a pain in her stomach and belly; but no menses appeared.

EXPER. XIII. Margaret Neilson, Exp. III. took pulv. fabin. first scrup. i. then drach. ss. twice a day, for five days. It excited severe pains in her belly, which she compared to those preceding the menses. But no menses appeared, till repeated bleedings brought them.

EXPER. XIV. Elizabeth M'Kenzie, Exper. VI. got pulv. fabin. scrup. i. twice a day. The dose was increased by degrees to drach. i. On the eighth day, the menses appeared.

From these trials, the fabine appears to be a powerful remedy, as it succeeded in three of five cases, or rather of four, as in Exper. XII. the disease withstood every application. From Exper. XIII. it appears improper in plethoric habits; from Exp. XI. well suited to the debile. These different effects, in different cases, arise from its strong topical specific stimulus.

RUBIA TINCTORUM.

The root of the rubia tinctorum, or madder, has always been used as a deobstruent in the jaundice, dropsy, and scrophula. Tournefort says, in his *materia medica*, "that it strongly provokes the courses." Hence I was induced to try it in obstructed menses, and have discovered it, by repeated trials, to be the strongest and safest emmenagogue with which we are acquainted. As this medicine is but just beginning to be known here, from the report of those who have seen its effects when used in the clinical ward, I shall lay before the public a detail of my experiments.

EXPER. XV. June 6. 1770. Agnes Paterson, 18, obstructed for the two last periods, complains of sickness, hot fits, flatulence, pains in her arms and loins, and tremors. P. 88, and of natural strength. Got an emetic. 8th, Cap. pulv. rub. tinct. drach. ss. quater in die. 13th, Menses appeared, and continued for two days.

EXPER. XVI. June 9. Margaret Alexander, 34, has been obstructed for 7 months. Since which she has been attacked with
hysterical

hysterical complaints, and a settled melancholy, and has been, at times, furious. She was put on a course of the tart. solub. and afterwards of the pil. foetid. without much effect. 27th, Cap. pulv. rub. tinct. scrup. ii. ter in die. 30th, Menfes appeared, and continued for four days. After this, her complaints abated by degrees. She was regular next period.

EXPER. XVII. March 3. 1774. Agnes Weir, 23, about five years ago, was exposed to cold during menstruation, on which the menfes stopped, and have never again appeared. Has since been subject to headach, nausea, weight at her stomach, cardialgia, pain in her sides and belly, lassitude, fluor albus, thirst, costiveness, want of sleep, and dyspnoea on motion. P. 70, and weak. She got a vomit, and p. rub. tinct. first drach. ss. then drach. i. four times a day. Pulse not quicker, nor drought increased by it. 13th, Menfes appeared, and continued for more than four days. At the same time next month, as she did not menstruate, it was again ordered. 21st, The menfes appeared, and in greater quantity than last time.

EXPER.

EXPER. XVIII. March 19. Margaret Stewart, 22, was obstructed for two months, from exposure to cold during menstruation. Headach, cough, pains in her breast and belly, sickness, and coldness of feet. She had got an emetic, and the tinct. hell. nigr. in vain. She took the rub. tinct. four times a day, for 14 days. All her complaints went off; but the menses did not appear.

EXPER. XIX. April 5. Ann Grant, 21, had her menses obstructed for two periods, and in small quantity for two years past, headach, acidity, nausea, flatulency, thirst, belly bound, and vertigo. After vomits, laxatives, bark, and sal. martis, she got rub. tinct. for four days only; as she choosed to go out, finding herself free from the preceding symptoms. But the menses did not appear.

EXPER. XX. November 26. Jean Gould, 26, has had an amenorrhoea for a year. Pain in the region of the stomach increased on pressure, cough, and vomiting of blood for twenty days. P. 80, and rather strong. Was bled, cupped opposite to the stomach, and got infus. tamar. December

cember 3. got p. rub. tinct. drach. fs. four times a day, which was gradually increased to drach. i. During the use of it, her complaints became better. 11th, Pains about the uterus, and headach. 12th, Menfes appeared, and continued next day.

EXPER. XXI. December 9. Margaret Sommerville, 36, affected with amenorrhoea for four months. Pain and swelling in the hypogastric region, vomiting, costiveness, and hysteric fits. P. 100. Took ass. foetid. for some days, without effect. 17th, Cap. pulv. rub. tinct. drach. fs. ter in die. 19th, Menfes appeared this day.

EXPER. XXII. December 27. Ann Dunbar, 31, was delivered in August last, since which her menfes have not appeared. About two months after delivery, she had a severe fever, after which she has complained of headach, nausea, vomiting, swelling, and hardness about the stomach, severe pain in the back and left side, swelling and pain of her feet in the evening, fluor albus, and tremors. P. 106. Got pulv. rub. tinct. drach. fs. four times a day. It was increased by degrees to drach. i. January

nuary 3. Stitch in her right breast. The powders were stopped, and she was bled five times. 13th, The rub. tinct. was repeated. 23d, Felt the symptoms which precede the menses. As she vomited, the powders were omitted.

EXPER. XXIII. January 14. 1775. Catharine M'Callum, 28, has had no menses for three months. Nausea, headach, cold sweats, swelled legs, pain in her back and arms. P. 104, and of natural strength. She got the pulv. fabin. for ten days, without effect. Then p. rub. tinct. drach. i. four times a day, for ten days, likewise without effect. Merc. dulc. and pil. coch. lim. ferr. et extr. gent. were afterwards tried without success.

EXPER. XXIV. January 31. Flora M'Bain, 18, has had an amenorrhoea for five months, attended by cephalalgia, tinnitus aurium, dullness of hearing, and pain in the uterine region. P. 84. Sit venae-sect. ad unc. ix. Blood fizy. Got p. rub. tinct. drach. ss. then scrup. ii. four times a day. 5th, Menses appeared.

EXPER. XXV. February 21. Ann Morison, 23. who had come in with a fever

fever, and had passed her usual period for 14 days. Got the rub. tinct. to drach. i. four times a day, for a fortnight, without the menses appearing.

EXPER. XXVI. March 11. Elizabeth Paton, 21, of a sanguine habit, hath been obstructed for a year, except at one period. Nausea, loss of appetite, pain and swelling of stomach, weakness and pain in the spine, and swelling of the right ankle. Was bled, and blood has a fizy crust. Got a vomit. 13th, Cap. p. rub. tinct. drach. i. quater in die. It made her sick. 17th, Menses appeared.

EXPER. XXVII. November 30. 1776. Nelly Steele, 19, no menses having appeared for nine weeks, is affected with flitting rheumatic pains, and sweatings. P. 96. Was bled twice, and blood in a natural state. December 9. Began p. rub. tinct. drach. ss. which was increased to drach. i. four times a day. Had blisters applied to the pained joints. 22d, Menses returned.

EXPER. XXVIII. January 1. 1777. Elizabeth Cattanach, 36, hath been affected with amenorrhoea for three years. Had just recovered of a fever, attended

with many of the symptoms of suppressed menses. Began rub. tinct. scrup. i. four times a day. 8th, Menses appeared.

EXPER. XXIX. March 2. 1778. Betty Edmunson, 18, has had no menstrual discharge for six months, since which she has been affected with convulsive and hysteric fits, twice or thrice a day. These latter the aether removed, which she took to four tea-spoonfulls, four times a day. 21st, Cap. p. rub. tinct. scrup. ii. quater in die. It was increased to drach. i. She once took four doses of it at once, without any sensible effects. 23d, Menses appeared.

EXPER. XXX. February 24. Mary M'Nab, 22, has had amenorrhoea for six weeks. She came in with a fever, and her pulse is still above 100. Cap. p. rub. tinct. drach. i. quater in die. She took it for 14 days; but no menses appeared.

EXPER. XXXI. November 26. Tibby Morison, 25, has had an amenorrhoea for two periods, and for three before the last menstruation. She had besides an ophthalmia. She was twice bled. Some days afterwards she began the rub. tinct. scrup. ii. four times a day. Menses appeared on the sixth day.

EXPER,

EXPER. XXXII. December 8. Janet Maxwell was delivered of a child 2 years ago, which she suckled and weaned last summer ; but has never had her menses since delivery. She began with rub. tinct. drach. ss. and it was increased to drach. i. four times a day. On the 15th day the menses appeared.

EXPER. XXXIII. December 22. Rebecca Jack, 21, obstructed for 4 months, and at each period affected with hæmoptoe for several days. She was bled, got the vitriolic acid, and sal. nitr. On the 29th, cap. rub. tinct. drach. ss. ter in die. She at last got drach. i. four times a day. On the 13th, when the hæmoptoe was expected, the menses appeared.

The preceding facts afford us the following conclusions :

1. Of 19 cases, in which it was tried, 14 were cured, and 5 were not cured. The cases of the former were, seemingly, worse than of the latter ; as, 1. The disease was of much longer standing in those cured, than in those not cured. In Exp. XV. it was of two months ; in Exp. XXI. four months ; in Exp. XXIV. five months ; in Exp. XXIX. six months ;

months in Exp. XVI. seven months ; in Exp. XX. and XXVI. a year ; in Exp. XXVIII. three years ; and in Exp. XVII. five years. Whereas, in those not cured, in Exp. XXX. it continued six weeks ; in Exp. XVIII. and XIX. two months ; in Exp. XXI. four months. It would appear from these facts, that the older the disease, the easier it yields to this medicine. 2. The only two hæmorrhagic patients were amongst those cured, as in Exp. XX. and XXXIII.

2. Of the five where the menses had not followed the exhibition of this medicine, in Exp. XVIII. and XIX. the patients were cured of the symptoms, and dismissed seemingly well. In Exp. XXII. it was vomited, so it could be of no use. In Exp. XXIII. the patient laboured under hydropic complaints. In Exp. XXX. a fever had just preceded, and a constant quick hectic pulse subsisted, in which state no medicine, probably, could have induced the menses, and in which this was given to try its utmost powers. It would be of great moment to mark the situations in which this medicine does not succeed. With this view, I have considered the habits

bits and symptoms of the successful and unsuccessful cases ; but I have not as yet been able to fix on any general principles. It does not arise from the age, as three of these patients, above 30, were cured. It does not arise from the habit or disease being inflammatory, or anti-inflammatory, which makes so great a difference in the effects of other emmenagogues ; for of those cured there were five, as in Exp. XX. XXIV. XXVI. XXXI. XXXIII. which were highly inflammatory ; on the contrary, there were five, as in Exp. XVI. XVII. XXI. XXVIII. XXIX. where the cases were of the debile anti-inflammatory sort. Of those not cured there was one in Exp. XXII. in the former, and three as in Exp. XVIII. XIX. XXIII. in the latter state. The others were betwixt the two states. The anti-inflammatory cases are, perhaps, in general, more numerous, as appears by the present list. Of this kind, therefore, there must, generally, be more cured, and more not cured, as has happened in our cases.

3. The sensible effects of this medicine are scarcely evident. It once excited vomiting ; but, as that happened once only, and,

and, as such patients often vomit naturally, that might have been owing to the disease. It never quickens the pulse. It never increases the inflammatory symptoms. The ophthalmia was not worse in the two ophthalmic patients. No haemorrhagy appeared, in either of the haemorrhagic cases, after the medicine was given, though both situations appeared very improper for any emmenagogue. On the contrary, the heat, thirst, and other complaints, abated, and the disease was cured. In such cases, therefore, it appears perfectly safe. It seems sometimes to remove the symptoms, without exciting the menses. In Exp. XX. the symptoms went off before the menses appeared. Where it did not cure, it did no harm, but was of some use, as in Exp. XVIII. and XIX. It, therefore, appears neither phlogistic nor antiphlogistic.

4. I have always begun with drach. ss. of the powder, then, in two days, have given scrup. ii. and if that does not prove effectual in two or three days, drach. i. four times a day. It never lies heavy on the stomach. The powder, as the most simple preparation, was preferred to the infusion

infusion or decoction, in which latter form it is given in cases of obstruction of the liver.

5. When it succeeds, the menses appear from the 3d to the 12th day, and were not later in any of the cases. I had given it twice to the 14th day, where it did not succeed. With such gentle effects on the rest of the body, and such powerful changes on animals, it is surprising that it operates so quickly, and yet so mildly, on the uterus.

6. Its effects are accounted for, by theorists, from its astringency. But what other astringent is emmenagogue? Chalybeates are the only instance of this kind. But these are stimulant as well as astringent. It would require strong proof, that the same body is deobstruent and astringent. Besides, it has a sweetish, but not a rough taste, and does not turn black with sal. mart. which shows it not to be astringent. It does not act as a tonic, as it is useful in inflammatory cases; and, in Exper. XIX. it succeeded, when bark had failed. As it produces no change in the vascular system, or excretory organs; as it is good in opposite states of the fluids; as its success appears often on the second and third day, its effects

fects are probably produced on the nervous system. It seems to possess a specific topical stimulating power, by which it acts on the nerves of the uterus alone, as emetics do on the stomach, purgatives on the intestines, diuretics on the kidneys, &c. It is the only way of explaining its action. Exper. XX. and XXXIII. seem convincing proofs of this theory, else it must have stimulated the vessels of the stomach and lungs, and induced the hemorrhagies to which the patients had been subject.

From Exper. I. it appears, that the *emanatio mensium* is more difficult to be cured than the simple amenorrhoea. What has appeared may be restored; what has not, may be impossible. It generally, perhaps, arises from some preternatural conformation of the uterus, as in the following case.

Feb. 11. 1773. Catherine Innes, 18, had never menstruated. Two years before this, she had been in the hospital with nausea, swelling of the stomach, and vomiting, and dismissed cured. About three weeks ago, she was affected with the former symptoms, purging, and loss of appetite. P. 76. After taking two vomits, and rhu-
barb,

barb, she got astringents, extr. gentian. and lim. martis, columbo, extr. campech. tart. emet. dec. verbasco. aq. calc. rad. cursut. opiates, &c. But the looseness continued, a fever came on, and she died.

On opening the thorax, the right lobe adhered to the pleura and diaphragm, and was much inflamed. There was also a small quantity of purulent matter found in the superior part of the right lobe. In the abdomen, the liver was much larger than natural, and adhered to the diaphragm and peritoneum. The gall-bladder was distended with bile. The spleen was much enlarged, and adhered to the diaphragm and peritoneum. There was, on the surface of the ilium, and adhering to it, opposite to the umbilicus, a small tumor of the meliceris kind, contained in a livid cyst, and about the size and figure of a Turkey bean. Many others of the same kind were found around it. At this place, the intestines adhered to one another, their cavities were much diminished in some of these adhering places, and seemingly not larger than a goose quill. In the under part of these adhesions, there was a small intro-

E e e

which

which the intestines were enlarged, in a slight degree inflamed, and distended with a quantity of faeces. Many of the mesenteric glands were enlarged, and scirrhous. The pylorus was thickened and indurated. The duodenum, internally, for almost its whole length, was covered with a thick black mucus, which adhered firmly to it. The uterus was small in size, very hard, and contained, in its cavity, a small quantity of purulent matter.

S E C T. XIX.

Experiments upon some Remedies used in the Herpes, or Lepra Graecorum.

There are no diseases which more frequently occur in the hospital than those of the skin, and none less reduced to order. To define and distinguish them properly, would be useful. There is one to be met with often, which may be called the Lepra Graecorum, or Herpes, where the skin is attacked with crusty or scaly scabs, sometimes dry, sometimes ulcered, and generally disposed in clusters. I find many patients, in the waiting room, affected with
this

this disease. They accuse, as the cause of it, a diet of salted food, of fish, salmon and milk, a moist habitation, and exposure to cold when heated ; but never infection.

It attacks those mostly in the prime of life ; for, of many patients in my report-books, all of them are between 15 and 30, excepting one of 4, and one of 50 years of age. Of these, two thirds are men. Such a great proportion of men must be considered as a general law in this disease, and must depend on its nature. This fact shows, that it arises neither from infection, to which women would be more subject than men, from their softer skin, nor from want of cleanliness, to which both are equally liable ; but from greater excess in exercise, food, drink, &c.

Whether the eruption is dry, or humid and ulcerous, makes no distinction in the cure. This is not difficult, in general, to be performed by proper internal medicines, except in that species where the colour is very white, which Celsus has long ago remarked. External applications of mercury and lead will often make it disappear ; but then it generally recurs. This seems to prove it to be rather a general, than a topical

cal disease. Let us view some of the remedies used in it.

CANTHARIDES.

Dr Mead recommends the tinct. canthar. so strongly, that it was proper to give it a trial.

EXPER. I. May 26. 1770. Elspeth Robinson, 32, nursing her child, was affected, ten years ago, with a dry scurfy eruption, which has gradually increased, and now covers the greatest part of her skin, excepting that of her face. The parts formerly affected are now sound. She never infected her husband, children, or the child at present at her breast, though that part has its equal share of the eruption. She took pulv. antim. crud. first drach. ss. then drach. i. four times a day, for sixteen days, without advantage. She then used the hot bath, decoct. sarsap. which increased her urine; and afterwards she got merc. dulc. with sulph. ant. praec. and issues, by which her disease was much diminished, but still continues on her legs and arms. Aug. 3. Cap. tinct. canthar. gtt. v. bis in die, ex aq. font. unc. ii. 14th, Cap. gtt. viii. &c.

Urine

Urine increased, and sometimes made with difficulty. Cap. gtt. xii. &c. 17th, Cap. gtt. xv. 18th, Eruption on her arms better. She has frequent strangury, and pain in the small of her back. Rep. haust. add. mucil. gum Arab. unc. i. 20th, No strangury. Rep. haust. ter in die. 24th, Urine increased. R. Tinct. canth. gtt. xviii. &c. Sept. 5. Eruption much better. 6th, R. Tinct. canth. gtt. xxii. &c. 8th, Dismissed almost cured.

EXPER. II. Isobel Stevens, 24, an out-patient, has had a dry clustered eruption for three years. It had disappeared after the use of mercury; but it again recurred. Cap. tinct. canth. gtt. xxviii. ter in die. It proved diuretic. She continued it for some weeks. The eruption diminished; but she was not cured.

EXPER. III. Jan. 2. 1775. William Scarlet, 50, affected, for six months, with a red scaly eruption, sometimes dry, sometimes wet, on his hips, and back part of his thighs. He began with tinct. canth. gtt. xv. thrice a day, mixed with the mucilage of gum Arabic, unc. fs. On the 6th, the dose was increased to gtt. xx. 15th, Urine much increased. Eruption better,
and

and drier. But he was obliged to give it up, as he had complained of severe gripes for several days.

EXPER. IV. Feb. 9. 1778. Thomas Livingstone, 15, affected, for four years, with a white dry clustered scabby eruption, chiefly on his legs and arms. He got merc. dulc. and sulph. antim. praec. the hot bath, dec. farfapar. ung. saturn. et nutrit. and ung. mercur. without success. 24th, R. Tinct. canth. gtt. xx. mucil. gum. Arab. drach. ii. aq. font. unc. fs. M. Cap. pro dose quarter in die. He took it for eight days, during which, each dose of the tinct. canth. was increased to gtt. xxxv. It produced no visible effects, nor any change in the disease.

Hence we may conclude, 1. That this medicine alleviates the disease considerably; but in none of the cases did it perform a compleat cure, though continued for many weeks. This difference in the operation of medicines ought always to be made, though it is seldom done. In the incurable diseases, it is of great moment to mitigate the symptoms; in the curable, it is of little use, as those medicines which cure will always be preferred. I have given

ven it in the pſora without any ſucceſs. 2. That it acts by its diuretic power. In the three firſt caſes, where the eruption was leſſened, this effect was produced. In the fourth, where it did no ſervice, the urine was not affected. I have often obſerved this diſeaſe retire with a natural or artificial increaſe of urine. As this excretion carries off the ſuperabundant ſalts and oils, it is not improbable that the diſeaſe ariſes from too great an accumulation of them in the vaſcular ſyſtem ; and that theſe, endeavouring to find their way, by the ſimilar excretion of the ſkin, irritate and ulcerate that part. 3. That the cantharides are apt to irritate and produce gripes in the inteſtinal canal, and that mucil. gum Arab. unc. ſs. to tinct. canth. gtt. xx. is not always capable of correcting that quality. 4. That tinct. canth. even in very ſmall doſes, affects the urinary paſſages, and produces ſtrangury ; but that muc. gum. Arab. prevents this effect.

CORTEX INTERIOR ULMÆ.

Dr Lyſons has recommended the inner bark of the elm, as a powerful medicine in all cutaneous diſeaſes.

EXPER.

EXPER. V. March 30. 1774. Ann Hiccenbottom, 17, was seized ten days ago with an eruption over her face, from which a thin fluid is separated. P. 100. R. Cort. inter. ulm. unc. iv. coq. ex aq. fontan. lib. iv. ad lib. ii. col. et cap. unc. iii. quater in die. 2d, Eruption drying, the decoction has no sensible effect. 8th, Much drier. 20th, Dismissed cured. It may be doubted, whether the cure is to be attributed to the medicine, as it had no visible effects, as it failed in all the other cases, and as the disease was so recent.

EXPER. VI. December 17. Robert Stewart, 17, a baker, was affected, about five weeks ago, with an eruption, first on his hands, now on his inferior extremities and belly. It is scaly and white in most places. R. Cort. inter. ulm. drach. iii. coq. in aq. font. lib. iii. ad lib. ii. Cap. unc. iii. quater in die. 31st, Old scabs have disappeared, but new ones appear. Urine seems increased. Belly more bound. Cap. unc. iv. pro dos. which was afterwards increased to unc. v. 14th, A fresh eruption appears. The decoction was now given up, as it had had a fair trial for near a month.

EXPER.

EXPER. VII. March 14. 1776. James Brown, 28, a sailor, affected for eight years with a dry scaly eruption on his extremities, and some parts of his trunk, has used, without success, in different hospitals, mercurials, antimonials, salts, sea-water, Harrowgate water, and sulphur, which last rendered the disease worse. He tried the hot bath, and pulv. antim. crud. to unc. i. a day, without advantage. 28th, He got dec. ulm. in the same manner, as mentioned before. It produced no visible effect, except binding the belly. The course was interrupted for four days, by a feverish state. April 16. eruption, though drier, still continues.

EXPER. VIII. Thomas Livingstone, Exp. IV. got it for six days in the same manner. But the eruption appeared rather worse the last day.

Hence, its want of success in the three last patients appears certain, and its success in the first seems dubious. Even allowing it success in that case, one cure out of four patients, is too small a proportion to entitle it to much merit. It will seldom be made use of, when we can always diminish, and, generally, cure the disease by other medicines.

V I P E R A.

Vipers were much used and esteemed by the antients, in all cutaneous diseases. Morgagni, Mead, and Du Haen, are of their opinion. Hoffman denies their effects in this way. I was very desirous to be able to form some certain judgment in this disputed point. But so little are they used here, that it was long before any could be procured in the shops, and then a few only.

EXPER. IX. Robert Stewart. Exp. VI. tried dec. ulm. merc. dulc. et sulph. ant. praec. aq. calc. internally and externally, which diminished the eruption over his body, but left his hands as bad as ever. January 30. \mathcal{R} . Viperam unam. coq. in aq. font. lib. i. fs. ad lib. i. et cola. Cap. unc. iv. quater in die. \mathcal{R} . Carnem viperæ post coctionem, contunde cum sacch. alb. q. f. ut f. elect. Cap. in die partitis vicibus. February 14. after taking in this way 12 vipers, which were all I could procure, he was better, but not cured.

EXPER. X. Feb. 10. 1778. Christy Aikin, 22, was affected with crusty scabs
on

on many parts of her body, which discharged matter, and were attended with considerable swelling of the parts below. She was besides affected with the scrophula. I prescribed her the viper broth and electuary, as above, which she continued for 14 days, and was, at the end of that time, almost cured of the eruption; but the swellings, which seemed symptoms of the scrophula, still continued. Hearing by accident the nature of her medicine, she would take no more of it. Broth of snails was substituted in their place, for some days; but it did not answer so well.

EXPER. XI. November 24. 1778. Ann Strayton, 15, covered since her infancy with a dry scaly eruption, got the decoction of one viper, and the electuary, for 14 days; and, at the end of that time, was dismissed cured.

From these three cases it appears, that vipers have good effects in this disease; and that in Exper. IX. and X. the cure was proceeding, as fast as expected, when the experiment was stopped, from a deficiency of vipers in the former, and a disgust in the latter. Though the cure in both these was brought near to a termination, we cannot assert that that would actually

actually have happened, especially as in the latter case I afterwards learned that the disease recurred, though merc. dulc. and sulph. antim. praec. seemed to have completed the cure when she was dismissed. They appear, however, not to be so insignificant a remedy, as Hoffman, and most modern physicians, especially in this country, seem to think. I imagined that oysters and snails would have supplied their place. But the effects of the latter are not so powerful, as we learn from Exp. X.

S A R S A P A R I L L A.

As sarsaparilla is diaphoretic, and supposed to be demulcent, it was tried.

EXPER. XII. May 9. 1769. James Knight, 22, was affected with a dry eruption a year ago on his head, then on his body, and for some months past on his extremities. His legs are swelled. P. 68, and weak. Cap. dec. sarsap. lib. ii. in die. Fiant fonticuli duo, unus in brachio, alter in crure. 24th, Urine has been much increased for some days; and, for two days, feels hot and painful. Eruption better. Swelling of his legs less. June 19. Urine
always

always in great quantity. Eruption almost gone. 27th, Skin quite clean. The issues may claim a share in the cure.

EXPER. XIII. May 12. Agnus M'Donald, 16, affected with a dry scabby eruption for two years. He got gum. guajac. ant. crud and an issue, without effect. He took dec. farfap. a bottle a day, for 12 days, without any alteration. He was afterwards cured by merc. dulc. and sulph. ant. praec.

EXPER. XIV. Thomas Livingstone, Exp. IV. took it for six days, without any good effect.

I have often tried it, along with other medicines, which failed; so that its powers are not much to be depended on.

MERCURIUS DULCIS AND SULPHUR ANTIMONII PRÆCIPITATUM.

This composition was first proposed in the Medical Essays by the late Dr Plummer, and has been much used since that time in all cutaneous defoedations.

EXPER. XV. Agnus M'Donald, Exper. XIII. after the dec. farfap. had failed, June 17. R. Merc. dulc. sulph. antim. praec.

aa scrup. i. mic. pan. q. f. f. mass. divid. in pil. No. x. Cap. pil. ii. mane et vesper. 21st, Eruption better. Sweats, and belly loose. Cap. pil. iii. mane et vesp. July 1. Purges, but does not sweat. Eruption drying fast. 15th, Urine much increased of late. Dismissed cured.

EXPER. XVI. July 15. 1770. William Johnstone, 36, has had a similar cutaneous eruption for three years. ℞. Merc. dulc. sulph. ant. praec. gr. iv. aa conf. ros. q. f. f. bol. cap. h. f. 30th, It produced nausea, sweat, and a little spitting. 6th, His bolus was suspended for some nights, and then increased to gr. vi. of each, and given morning and evening. He used the hot bath along with it. These great doses of this medicine sweated him, and kept his belly open. On the 14th, he began to be thirsty and restless, his tongue was white, and his P. 104. Thus, large doses, tho' they do not salivate, are capable of producing a feverish state.

EXPER. XVII. Nov. 29. 1744. Mary Scot, 24, labouring under a dry eruption for a month, took, of each, gr. ii. morning and evening, for three weeks. They produced nausea and gentle moisture, and cured her.

EXPER. XVIII. Robert Stewart, Exp. VI. before he took the viper-broth, had been under a course, for twelve days, of this medicine. It brought on a salivation; but it did not carry off the eruption.

EXPER. XIX. Dec. 27. 1776. James Arbuckle, 19, has had, for five weeks, an eruption of pustules, with white scabby heads. Took, of each, gr. ii. morning and evening, along with the hot bath. He sweated each night, and his belly was open. He was cured in seventeen days.

EXPER. XX. Thomas Livingstone, Exper. VIII. took the above for ten days, without any benefit. It purged him.

EXPER. XXI. March 3. 1778. Malcolm M'Culloch, 26, has his forehead and cheeks covered with an elevated yellow scab. Took the above for three weeks. It produced a gentle salivation. At the end of this time, his disease seemed to be cured; and he was dismissed. But it returned in a fortnight, and was again removed by a seton in his neck, sulph. ant. praecip. to gr. vii. at bed-time, and mercurial ointment applied to the part.

EXPER.

EXPER. XXII. Feb. 9. David Simpson, 27, with a dry hard eruption on his hands, was cured by this medicine in 18 days. It produced a moisture on his skin.

EXPER. XXIII. Christy Aitkin, Exp. X. had the remaining eruption carried off by this medicine. But I was told that the disease recurred again.

From the above experiments, the following conclusions may be drawn :

1. This combination appears to be a very powerful remedy, as it cured seven out of nine patients, which is a very respectable proportion of those cured, to which few medicines can attain. Besides, many of them were ill for years. The good effects are not only owing to the mercury, but to the sulphur of antimony, as in Exp. XXI. it seemed to be of considerable use.

2. This medicine rarely produces nausea. It loosened the belly in nearly the half of the patients, and was attended with a moisture each night, in a great number. It was often accompanied with an increase of both these evacuations. A gentle spitting was excited in two, and a salivation in a third. It may seem surprising that such a dose of merc. dulc. does not always salivate.

vate. But this is owing to the peculiar property of sulphur, when combined with mercury; as the former not only prevents salivation, but puts a sudden stop to it when already begun. If the two are well rubbed together, this effect of sulphur will be more certainly promoted.

3. This composition produces the good effects mentioned. 1. By its diaphoretic powers. The sulph. antim. directs the mercury more to the skin, and the preceding nausea, when it happens, makes this effect yet more powerful. Hence, in the two cases not cured, the skin was not affected, tho' in one there was a looseness, and in the other a salivation produced. Its diaphoretic effects seem most powerful. 2. By the specific and antacid powers of mercury. The evacuation, in some of the cases, seemed too gentle to be supposed alone to cure.

4. I think that this medicine is more properly exhibited in a bolus than in pills, the form in which I first gave it, and in which it stands, at present, in the Edinburgh Dispensatory, as we can alter the proportions at pleasure.

G g g 5. The

5. The hot bath assists the operation of this medicine much, as it softens and opens the skin, and gives a freer passage to the mercury. A great quantity of scales always came off after bathing. Whether the hot bath will cure this disease of itself, I cannot say.

6. Issues are well conjoined with it, as they give the speediest vent to all cuticular acrimony. If its seat is in the cellular membrane, it has an easy egress by them. I have found them excellent cures in all defoedations of the skin. As they do not alter its texture, this is a further proof that the disease is owing to acrimony subsisting in the fluids.

ACIDUM VITRIOLICUM.

The vitriolic acid has been much extolled in Germany for some time, in the cure of all cutaneous defoedations, and especially in such as the present disease. It was, therefore, proper to try its powers.

EXPER. XXIV. Nov. 23. 1778. David Bontrom, 23, has been, for three years, affected with a cutaneous eruption of this sort. It is dry on his arms, but
discharges

discharges a thin foetid matter on his belly. He had some degree of fever with it. He got 80 drops of the spt. vitr. ten. mixed with the mucil. of gum Arab. in the day, which generally produced two loose stools. He continued it for eighteen days. During its use, the eruption became somewhat dryer; but he was not cured by it. He was afterwards cured by the preceding medicine, and the dec. sarsaparill,

EXPER. XXV. Nov. 24. Anne Strayton, Exper. XI. got the same medicine, in the same form and quantity, for eleven days. It seemed, at first, to make the skin softer; but the eruption was not better. She was cured by vipers.

In both these cases, this medicine got a fair trial, was exhibited in greater doses than could have been done without the mucilage; and yet it had no success, while the patients were cured by other internal medicines. Its effects do not, therefore, appear to be very powerful. When it does cure, I suspect it is as a laxative, which it always proves in great, or often repeated doses.

S E C T. XX.

Experiments upon the Vermifuge Effects of the Spigelia Marylandica.

There is no disease which is accompanied with a greater variety of symptoms than that occasioned by worms, and in none do we stand more in need of a certain diagnostic. The symptoms of worms, hitherto relied on, are common to a multitude of diseases. Loss of appetite, acidity, and acid eructations, pains of the abdomen, alternate bound and loose belly, slimy and putrid stools, grinding of the teeth, and erratic fever, arise from an increased quantity of mucus in the intestines. Dull pain, and swelling of the belly, purging, atrophy, hectic fever, pale colour, and foetid stools, are occasioned by scirrhus or scrophulous tumors of the mesenteric glands. This appears from Lieutaud's dissections *. Dry cough, purging, flushed face, fever, &c. belong to dentition. But what is strange, the hydrocephalus, though its cause and seat are so very different,

* Vid. in Laesionibus Abdominis, obs. 124. 226. 527. 529. 537.

ferent, resembles this disease the most. In the former, the cheeks are red, sudden calls of hunger are felt, and there are frequent startings. So near do they approach, that it is even accompanied with pains of the belly and joints, grinding of the teeth, and picking of the nose. In five or six of my patients, in whom the hydrocephalus was ascertained by dissection, there was a constant grinding of the teeth, and picking of the nose. Dr White was among the first who marked these symptoms in the hydrocephalus. They are also to be found in Lieutaud's dissections. I saw them in a hemiplegia, which arose from an effusion of two ounces of blood on the medulla oblongata. So like are these two diseases, that the hydrocephalus is every day mistaken for worms, though the slow pulse, and dilated pupil, attending the advanced state of the former disease, ought to remove all uncertainty. Nor do I agree with some, in directing all our intentions to the destroying of worms, as by that method we never shall discover a cure for the hydrocephalus.

A certain diagnostic symptom of worms, therefore, has hitherto been a desideratum
in

in practical medicine. Such a one I discovered, about 16 years ago, which was not mentioned by any author; that is, an oedematous swelling of the *alae narium*, upper lip, and often of the contiguous parts of the cheeks. The apertures of the nostrils are diminished, and at last are not half their natural size. This diagnostic is certain, as I have trusted chiefly to it since that time, and it has faithfully served me. It is useful, as the patient is not always able, from infancy, to tell his complaints. For, from long habit, I can discover them, and point out the disease to the gentlemen in the waiting-room, without asking a question. It is not the first symptom that appears; but it is always seen soon enough for the cure.

The *Spigelia Marylandica*, or Indian Pink, in a former edition of Linnaeus's works, called *Lonycera Marylandica*, was discovered, about the year 1740, to the Europeans, by the Indians, as a vermifuge medicine. It is the root of a plant that grows in the low grounds of South Carolina. As no experiments have yet been published here on this medicine, I
will

will collect those which have, for some years, been made in the clinical ward.

EXPER. I. May 15. 1770. Alexander M'Leod, 5, has had a severe looseness for four months, with slimy stools, tumefaction, and pain in the belly. Headach, flushing of cheeks, picking of nose, grinding of teeth, swelling of the upper lip and nostrils, thirst, and white tongue. Chincough for three weeks. ℞. P. rhei gr. xii. merc. dulc. gr. i. M. cap. h. f. ℞. P. Spigel. Maryl. gr. x. cap. mane et vespere. 19th, Passed a round worm. 23d, Purging still continues. Rhubarb repeated. 28th, Worm complaints better. Purging still continues. Rep. pulv. rhei. June 3. Worm complaints gone, so the pulv. Spigel. was given up. Bark carried off the remaining chincough and looseness.

EXPER. II. May 16. Christian M'A-laster, 27, labouring under a tertian, has passed several worms, within these five months, and at present has pains in her belly, swelling of the upper lip and nostrils, grinding of her teeth, and picking of her nose. She got a dose of rhubarb and mercury. After which, on the 22d, she took of the Indian pink drach. fs. thrice

a day. It kept the belly constantly loose. 25th, Passed a round worm. Got the powder four times a day. 29th, Passed two worms. Symptoms much diminished. Lip and nose less swelled. The Spigelia was increased to scrup. ii. each dose. June 2. all worm complaints gone, excepting a pain in the belly, of which there is no farther mention, after giving up the medicine.

EXPER. III. July 31. Susan M'Intosh, 5, has been affected for two years with pains in her belly, feverish fits, nausea, sickness, purging, grinding of the teeth, picking of the nose, and thirst. The nostrils are swelled, and sore when pressed. Got a vomit. Cap. pulv. Spigel. Maryl. gr. x. mane et vesp. 6th, Appetite better. 11th, No complaints. 14th, Belly always loose. Dismissed cured.

EXPER. IV. August 29. James Crichton, 20, has passed some worms, and is affected with pain of his belly, and uneasy gnawing in his stomach in the morning. He took Spigel. Maryl. drach. fs. four times a day. It did not open his belly, so he got some laxative pills. Sept. 5. Pains of his belly gone.

EXPER.

EXPER. V. March 21. 1774. Robert Christie, 5, picks his nose, grinds his teeth, belly tumified and pained, craving for food in the morning, lip and nostrils swelled. P. 130. He began with Spigel. Mar. gr. iv. each night, which were gradually augmented to gr. viii. It purged twice or thrice each day. April 4. all complaints gone.

EXPER. VI. January 12. 1775. Katharine Millar, 6, affected with severe cough for three weeks, and a hard and painful swelling of the belly; but neither grinds her teeth, nor picks her nose. P. 138. Upper lip rather swelled. After a dose of rhubarb, and merc. dulc. she began to take Spigelia Maryl. gr. viii. first once, then twice a day. Her belly was always loose. 25th, Dismissed cured.

EXPER. VII. Feb. 17. 1776. David Gordon, 7, of a scrophulous habit, has, for three weeks, been affected with headach, pain, and swelling of his belly, difficulty in walking, remarkable swelling of his upper lip, alae narium, and parts around, which appeared eight days ago. He passed three worms after a dose of senna taken some days before this. P. 108. Cap. pulv. Spigel. Maryl. gr. vii. bis in die. 21st, Belly
H h h bound.

bound. Rep. pulv. spigel. add. pulv. rhei. gr. iv. This kept the belly loose, and brought off many scybalae. 24th, Swelling of face and belly much less. Passed, last night, stools very foetid, with apparent pieces of worms. 26th, Swelling of the upper lip gone. Passed three worms.

EXPER. VIII. Nov. 25. 1776. Margaret Telfour, 10, not scrophulous, affected with severe pains of the abdomen at different times of the day, gnawing at her stomach, flushing of her face, and swelling of the alae narium and upper lip, which symptoms have continued for a year. Picks her nose sometimes, but never grinds her teeth. Has passed several worms. Cap. pulv. Spigel. Mar. gr. x. bis in die. Dec. 1. Complaints gone. The medicine always purged her.

From the above experiments, it appears,

1. That this vermifuge is an effectual and valuable medicine, and that, in eight cases, in which it was given, it always carried off the symptoms occasioned by worms.

2. That worms came away in three of the cases, but none in the other five, tho' the symptoms equally retreated in the latter.

ter. These animals must often be dissolved by putrefaction in the large intestines, along with the faeces.

3. That it takes sometimes six, sometimes eighteen days, to remove these symptoms.

4. That, in all the cases, two excepted, its exhibition was attended with a loose belly, and gripes. But that, in none, not even when the belly was bound, did it produce vertigo, dimness of sight, or convulsions, as we have been told ; nor excite any of the effects of narcotic poisons, tho' given in considerable doses. Perhaps these effects may attend it when exhibited recent, and they may be corrected by keeping.

5. That children of eight years of age may take 10 grains, twice a day ; and adults may go the length of drach. fs. four times a day, with safety.

6. That it is safe and useful in the worm fever, as that was the state of some of the above patients.

7. That the swelling of the nostrils and upper lip, is a more constant worm symptom than any of the rest. That it accompanies the disease, where there is no suspicion of scrophula ; and retires, with the
worm

worm symptoms, when they arise in such a habit as in Exper. VII.; and that, where this symptom, which is often not to be observed, appears in the scrophula, it probably arises then from worms, which frequently accompany this disease, as in the above experiment.

S E C T. XXI.

Experiments upon the Deobstruent Effects of Mezereon.

The Mezereon is classed among the plants of an acrimonious, caustic, and poisonous nature. The bark of the root has been most used; but, at present, the woody part of it is preferred by some. Its bark seems, however, more acrimonious to the taste.

The effects of a decoction of its root, in curing venereal nodes, have been long established. These seldom disappear under the mercurial course which cures the venereal disease. If they arise from a swelling of the bone, no medicine, perhaps, can resolve them. But, when they proceed from a thickening and tumor of the periosteum,

mezereon

mezereon has been found to succeed. My report-book for the summer 1769 contains some cases of this kind. As the deobstruent effects of this root seemed, from these cases, so powerful, I soon conceived hopes of carrying them farther, and of finding it as efficacious a medicine in other obstructions remaining after the cure of the venereal disease.

EXPER. I. July 1. 1769. ———
 18, who never menstruated, seized about three months ago with pain in the throat, which has continued since, attended with considerable swelling, inflammation, and ulceration of the amygdalae of the right side. Has a running from the vagina, and fiae about the anus. She got merc. praec. cin. which made her spit a little, till the 17th of August, when all the venereal symptoms had, for some time, disappeared. But still the amygdalae were as much swelled as ever. R. Rad. mezer. drach. ii. coq. in aq. font. lib. iii. ad lib. ii. cap. partitis vicibus in die. Sept. 7. swelling almost gone, and dismissed. Here the decoction reduced a scirrhus swelling, which mercury could not do.

EXPER.

EXPER. II. Ninian Cowan, 23, has been affected for a year with gonorrhoea, shankers, ulcers of the throat, and a swelling of his testicle, which had appeared at first, had gone off, and returned about six weeks ago. All his symptoms were cured in five weeks, by merc. praec. cin. except the tumor of his testicle, which still remained. He was put on a course of dec. mezer. In three weeks the swelled testicle was as small as the other.

Thus this root appeared to be a powerful deobstruent in all venereal tumors, of the scirrhus kind, where mercury had failed. These facts naturally led me to conjecture, that its powers might be extended, beyond the curing of venereal scirrhus tumors, to that of other obstructions, where medicines had hitherto failed, as mercury is the most powerful deobstruent yet known.

EXPER. III. June 8. 1769. Agnus M'Kay, 39, after he was cured of a sciatic, discovered a hard scirrhus tumor in the right pectoral muscle, which had appeared two weeks ago. He was ordered dec. mezer. lib. ii. in die. It made him very sick, took away his appetite, and increased his urine ;
but

but neither affected his belly, nor produced moisture on his skin. In four days the tumor was much less, and in eight quite gone.

EXPER. IV. August 9. Margaret Anderson, 41, about ten weeks ago perceived below the thyroid cartilage, on both sides of the trachea, a tumor, which has gradually increased to the size of an egg, is moveable, and hath affected her breathing for some time. Pulse and menses regular. No appetite. Sleeps ill. She was put on a course of dec. mezer. and a poultice of the decoction and meal was applied to the tumor externally. 30th, It was reduced to half its size, and she was dismissed.

EXPER. V. June 22. Peggy Todd, 19, was an out patient, and came to the ward at stated times. She had, for a year, on the right and back part of her neck, a large moveable tumor, which she thought was occasioned by carrying a child on that part. It appeared in the course of the cucullaris muscle; and, though we had no certainty whether it was glandular or muscular, yet the latter appeared more probable. It had gradually increased with-
out

out pain ; and was 6 inches long, 3 broad, and about 2 high. She was otherwise in good health. Internal medicines were deemed insufficient for the cure, and an operation alone was thought admissible. It appeared, however, a proper case for trying the powers of this medicine. She got dec. mezer. as above prescribed, and a fomentation, and poultice made of it, were applied externally. 30th, Tumor less. The decoction has no sensible effect. July 6. diminished in all its dimensions. 22d, Still hard, but much fallen, especially in height. She continued the remedy without any peculiar effects on the rest of the body, till the 20th of October when the tumor was no bigger than a chesnut. Thinking herself almost cured, she gave over the medicine.

EXPER. VI. June 9. 1770. John Goodbrand, 28, perceived, about 6 months ago, a swelling of the right parotid gland, and, 2 months after, another of the left. The right is about 2 inches long, and an inch broad ; the left about 1 1-half inch long and an inch broad. They are both painful, and the left alone moveable. His saliva is considerably diminished in quantity ; but his deglutition

deglutition is not affected. Pulse natural. He was put on a course of the mezereon. July 1. Swelling of the right side less and softer. The decoction sometimes produces a nausea. 26th, Swelling of the right side much less; that of the left continues the same. Dismissed.

EXPER. VII. February 21. 1776. James Nielson has had a scirrhus swelling of the right parotid gland, for some days. After taking some medicines for a purging, he began the dec. mezer. It kept the belly open, and sweated him. March 1. swelling gone.

Thus the mezereon appears to possess deobstruent powers, stronger than any body yet known, as it reduced scirrhus swellings, which had appeared incurable, and as it cured many of them after a course of mercury had failed. This is a discovery of the greatest moment in medicine, as a body possessed of such effects was rather to be wished for than expected.

In this field its limits must, however, be very narrow; as many of the vessels, especially in the centre of the tumor, will soon coalesce, and be effaced. Hence, its operation often goes a certain length only;

and often it can do nothing towards the cure. Its effects are most conspicuous in the recent ; perhaps, too, in the muscular tumors. I have tried it in one case of scrophulous swellings ; but without success.

It seems to act by a general stimulus, as its taste is acrid, as it is of the acriminous class of bodies, and as it excites nausea, and sometimes sweating and purging. Although it does not quicken the pulse, yet it may stimulate the smaller vessels into quicker action, by which power alone the obstruction can be removed.

We found drach. ii. to the bottle a sufficient dose. When another half drachm was added, it produced too great sickness.

S E C T. XXII.

Experiments upon the Effects of the Verbascum in Diarrhoea.

Botanists differ about the species of this plant that is to be used. Some recommend the yellow, others the white mullein. The white, or Cows Lungwort, is the one generally preferred, and which was used in the following experiments.

Its

Its taste is a little rough, though it is not astringent. It has been much used abroad, especially in Italy, as a pectoral, for some years, in decoction, under the name of *Bouillon blanc*, which name it gets from an addition of some white meat, as the decoction of it differs not in colour from that of other vegetables. As Schroder recommends it in diseases of the breast, I had tried it in consumptive cases in the year 1774, in vain. It was again tried in 1778, in two cases of phthisis; but without success. So that, whatever effect it may have in simple coughs, it did not seem to abate the cough, or symptoms in ulcered lungs, though in one of these the ulcer appeared to be open.

As it had, long before that time, been recommended to me as a medicine useful in confirmed diarrhoeas, by a gentleman who had taken it himself in such a situation; and as it is mentioned by Schroder, as of advantage in pains of the belly, I thought it worthy of a trial.

EXPER. I. May 13. 1769. Joseph Banbrook, 26, was seized with an ague three years before, which continued two years, and then stopped. He soon felt

a fullness and pain under the short ribs of the right side, stretching to the left ; and, about six weeks afterwards, was seized with a flux, which has continued ever since, attended with about nine watery stools a day, without gripes. He has had a cough for some weeks, with much gross, yellow, and salt tasted defluxion, but without pain, cold fits, or nocturnal sweats. Breathing difficult, especially during exercise. The white of his eyes and skin are yellow. Belly a little swelled, but no fluctuation observable. Lies easiest on his right side. No pain in his right shoulder. Pulse from 112 to 120. Cap. pulv. rhei torrefact. drach. ss. h. f. ℞. Fol. verbasco. unc. ii. coq. in aq. font. lib. iii. ad lib. ii. et cola. Cap. unc. iv. 3tia quaque hora. 20th, Seized with a natural vomiting, for which he got a vomit. 29th, Diarrhoea abated. Pain and swelling about the liver less. After this the purging gradually diminished, the pain and fullness of the side went off, the belly fell, and on the 5th of June his purging disappeared, though his intestines continued weak, and easily irritated by medicines, even of the tonic kind,

This

This was a bad case, as the diarrhoea had lasted for twelve months, which had weakened the intestines much, and reduced him to extreme emaciation. Besides, there was an affection of the liver, from the pain and fullness of the right side extending to the left, from the jaundice, and from his lying easier on the right side, as the ligaments of the liver are too much stretched when the patient lies on the left. It appeared rather to be an obstruction than suppuration of that viscus, as he had no sweating, nor cold fits, and the pulse was less quick at night than in the morning. The cough, though attended with gross defluxion, seemed to arise mostly from the swelled liver, as he had no pains in his breast, or other hectic symptoms. The verbasum was ordered for the purging and cough, both which it removed.

EXPER. II. July 11. Daniel Duncan, 19, has been affected, for four weeks, with severe purging, gripes, and tenesmus, and had passed some blood for the first week. Sweats every night. P. 108, and of natural strength. He was bled, got a dose of rhubarb, and the dec. verbas. 18th, Purging almost gone; and he was dismissed.

dismissed. But, in a fortnight, he relapsed, and returned again. There was no more verbasum in the house, a little only being provided for my use, nor more to be got in the shops, as it was not then a dispensatory medicine.

EXPER. III. Dec. 16. 1774. Elizabeth Mills, 43, has been affected with a diarrhoea for a fortnight, attended with severe pains. P. 98. After a vomit, I ordered the dec. verbas. with unc. i. only to the lib. ii. of water. In two or three days, the purging disappeared; but the pains continued for several days, and were removed by the ol. ricini.

EXPER. IV. Jan. 16. 1776. Robert Taylor, 60, has had a purging for three weeks, attended with severe pains. He got a vomit, ipecac. in small doses, rad. colombo; but the diarrhoea continued. 29th, Got the dec. verbas. lib. ii. each day. The stools became natural, the pains went off, and on Feb. 4. he was dismissed cured.

From these experiments, it appears, that a decoction of this plant is useful in diminishing or stopping diarrhoeas of an old standing, and often in easing the pains of the intestines. These acquire a great degree
of

of irritability ; and the ordinary irritating causes, aliment, bile, distention from air, keep up a quicker peristaltic motion. This is obviated by the emollient, and perhaps gentle astringent qualities of this plant.

But, besides these, it seems to have some anodyne quality. It eases the pains of the intestines, is injected in a tenesmus into the rectum with advantage, and is often applied externally to the piles. Linnaeus says, that, when mixed into a paste with flour, and thrown into the water, it stupefies fishes, so that they may be taken with the hand. If anodyne, it may act chiefly by that quality.

Though, from the scarcity of the plant in the house, an ounce only to the lib. ii. of water was, in those experiments, generally used ; yet I think that that proportion is too little, and would rather recommend two ounces.

S E C T. XXIII.

Experiments upon the Antihemorrhagic Effects of the Cucurbitulae sine ferro, or Dry Cupping.

This application was much used by the ancients ; and, though ordered, at present,
in

in pains of the head and breast, is less in practice than it ought to be in many diseases, especially in the hemorrhagic. Hippocrates recommends it much in the menorrhagia, and orders the application to be made to the breasts. “*Mulieris menses cohibere si velis, cucurbitam quam maximam mammis appone.*” This observation appeared to me, on several accounts, to carry probability with it; so I tried that application.

EXPER. I. Dec. 3. 1774. Sarah Black, 42, has been subject, for a year, to a discharge of blood from the uterus and fluor albus, which alternate. She tried gum. oliban. and gum. mastic. in pills. elix. vitriol. tinct. rosar. cold water, with a little vinegar, injected into the uterus, bals. capyv. sal. mart. opiates, and aq. calcis, without advantage. Jan. 6. She has lost, since last night, two pounds of blood. The Cupping glasses were applied to each mamma at noon; and the discharge stopped in the evening. She continued well for three days, and then began to take aq. calc. and gum Kino. She used the cold bath. A little blood appeared again on the 30th, and on February 7. On the 14th, she was dismissed cured.

EXPER.

EXPER. II. Jan. 3. 1776. Margaret Taylor, 18, has been affected with menorrhagia for three weeks, attended with pains of the belly and back. She got tinct. rosar. opiates, and cort. Peruv. which last stopped the haemorrhagy for two nights; but it returned on the 15th. The glasses were applied to both mammae at 5 P. M.; and the discharge stopped in the night-time. The application was continued for two days, twice a day. Though the blood stopped, the pains of the belly remained, and she was attacked with aguish fits. 28th, After some severe labour, the menorrhagia returned. The glasses were again applied to the mammae, and an hour afterwards the hemorrhagy stopped. After this, she got gum Kino, gr. x. twice a day. 31st, Dismissed cured.

EXPER. III. Marion Adamson, 36, came in with a fever; and, after recovery, January 10. was seized with a flooding, at the distance of 14 days only from the last period. She got tinct. rosar. opiates, nitre, and an application of cold water to the belly, by which the discharge was a little lessened. 15th, The cupping glasses were applied to both breasts; and the discharge

K k k

soon

soon afterwards diminished. 16th, The application was repeated, and the hemorrhage disappeared this afternoon, and returned no more; but the pains continued for some days.

Thus cupping glasses, applied to the mammae, seem to have a sudden and powerful effect in stopping hemorrhages from the uterus. Women often die in childbed of a flooding. This remedy must then, not only be powerful, but of quick operation. It will certainly be of use on both these accounts. The glasses were ordered to be applied generally twice a day, and to be continued for a quarter of an hour. No reason occurs why they may not continue longer.

A multitude of facts point out a strong communication betwixt the uterus and mammae. But, whether the famous anastomosis betwixt the hypogastric and mammary arteries, a nervous sympathy and communication, or some general law of nature useful to the body, occasion this, it is of less moment to us than a knowledge of the fact.

This application is useful in other hemorrhages.

EXPER.

EXPER. IV. March 16. Janet Burn, 21, laboured under a haematemesis, and various other complaints. Many medicines were tried in vain. Amongst the rest, cupping glasses were applied to the stomach, for an hour, twice a day. In two or three days, the blood disappeared, and was afterwards but little seen.

I have found it stop likewise simple vomiting attending dyspepsia. It, therefore, appears to be a powerful remedy, and capable of doing more service than is thought.

S E C T. XXIV.

Experiments upon some Lithontriptics.

C A U S T I C L I E.

Uncommon attention has been paid, by physicians, for these thirty years, to such medicines as were supposed to possess a power of dissolving the stone. Mrs Stephens's remedies were soon found too bulky and inefficacious; nor could all the attempts to simplify them support their reputation. Lime-water next appeared, and underwent the same fate. Caustic lie was discovered, by Dr Hales, to dissolve urinary calculi, and has been
much

much used ever since Dr Jurin published an account of his own cure by it. Chittick's medicine is now ascertained to be the caustic alkali. Some experiments are, therefore, necessary, to fix the value of that remedy.

EXPER. I. April 1. 1769. Thomas Duggen, 14, was seized, about five years ago, with pain in the small of the back, stretching down to the os pubis, along the course of the ureters, and has, since that time, been subject to frequent solicitation to void urine, dysuria, pain in the end of the coles, tenesmus, purging, and sometimes costiveness and nausea. His urine often stopped suddenly. He frequently passed sand, and for a year bypast a stone almost every fortnight. After admission into the hospital, he was put on a course of the caustic alkali; and, when admitted into the clinical ward, was taking gtt. L. in three gills of veal broth, twice a day. May 14. Cap. gtt. LX. ter in die. 21st, Passes great quantities of purulent-like matter, that falls to the bottom of the glass. Pains and difficulty of passing urine easier. Rep. ad gtt. LXX ter in die. June 3. Augeat. dos. lixivii ad gtt. LXXXV. jusculi ad lib. i.

lib. i. 8th, He thinks that the medicine excites pains in his stomach. 15th, Auguat. dof. ad gtt. xc. Has, for some time, passed his urine involuntarily. July 2. Had, last night, a nausea, and severe nephritic pain in his left kidney. Being put into the hot bath, he felt the pain gradually descending downwards, and then it disappeared. 14th, Auguat. dof. ad gtt. xcv. 19th, Auguat. ad gtt. c. 27th, Urine retained better, and passed without stopping. Aug. 22. Has been more uneasy when he voids his urine for some days. Sept. 6. Dismissed somewhat relieved, after having taken this medicine for five months, in considerable doses.

EXPER. II. May 2. Robert Yates, 5 years of age, was seized, after a fever, about a year ago, with a constant desire to pass urine, which was frequently bloody, and often stopped suddenly. He had a severe pain in his bladder, tenesmus, and uneasiness in the point of the coles. He sometimes passed sand and mucus. His pulse was frequent. When sounded, a stone was discovered. He was put on a course of uva ursi; but without procuring any ease. May 9. he began to take of the caustic lie,

15 drops, in veal broth, twice a day. 12th, Took gtt xx. thrice a day. 14th, Much pained. Each dose was increased to gtt. 25. 21st, Passes more urine than usual. The dose increased to gtt. xxx. 24th, Blood and sand at the bottom of his urine. Takes gtt. xxxv. in 3 gills of broth. June 1. Pains easier, more urine, which is passed with greater ease. The dose increased to gtt. XL. 11th, Much difficulty of passing urine for five days. The dose increased to gtt. L. 25th, Eyes inflamed. Pains of belly. Sit venae sect. ad unc. iii. Blood rather thick than dissolved. 31st, Urine bloody. July 18. takes gtt. LXX. 26th, Much pain, and great difficulty of passing his urine, for some days. Dismissed, after trying it for three months, without much relief.

EXPER. III. May 11. 1770. Andrew Murison, 50, was seized, about a year and a half ago, with frequent sollicitation to pass urine, and sudden stoppage while it was passing, with pain about the bladder and point of the penis, tenesmus, and retraction of his left testicle. After severe exercise, his urine was generally bloody. On sounding him a stone was felt. Cap. lixiv.

lixiv. caust. gtt. xxx. in juscul. vitulin. ten. ter in die. 19th, Each dose increased to gtt. LX. June 3. takes gtt cxx. each dose, and complains that it pained his lips, throat, and stomach, from its acrimony. Belly very bound. Cap. flor. sulph. drach. fs. h. f. 23d, Takes now about 200 drops, thrice a day. July 4. no better. He was therefore remitted to the surgeons, and a granulated stone, above an oz. in weight, was extracted. This patient was near 8 weeks under this course, and took at last about 10 tea-spoonfuls a day, without any sensible advantage from it.

EXPER. IV. December 2. 1778. John Robertson, 22, has been subjected, from his infancy, to symptoms of the stone in the bladder. When sounded, a stone was felt. Cap. lixiv. caust. gtt. xx. in infus. lin. unc. iv. et repet. quater in die. August 6. Augment. dos. ad gtt. XL. ℞. Lixiv. caust. gtt. XL. aq. font. unc. iv. M. et injiciatur in vesicam mane et vespere. The injection was performed by a catheter, and a bladder affixed to its end. He retained it 4 hours, and, when passed, it appeared turbid. 9th, Seized with a shivering fit last night. Pain in his right kidney. Headach and delirium.

delirium. P. 116, and strong. His medicines were stopped. He was frequently bled ; and, in a few days, the fever went off. As the fever was so violent, it must have been produced by some other cause than the drops or injection, and increased by fresh nephritic complaints. But, as he seemed in such an irritable state, it was not thought proper to begin the caustic lie again.

The lie was tried in two other cases of stone in the kidney ; but with no better success.

From the preceding experiments, one would be apt to form the most unfavourable opinion of this lithontriptic, as it never cured, and but once mitigated the symptoms, though continued for a longer time than to which most patients would be willing to submit, and given to the utmost quantity that the stomach could bear. The symptoms, in some of the preceding patients, appeared to be aggravated by it.

But I am still unwilling to pass a severe sentence on this remedy, as the experiments are but few ; as some of the patients were young, which makes the case more unfavourable ; as the calculi might have

have been of a nature less suited to be acted upon, from their composition or hardness; as in Dr Jurin's case, and some few others, calculi appear to have been dissolved by it; and, as I found, from the following experiments, that the urine of those taking this medicine was strongly impregnated with the caustic alkali.

It has been objected to this, and to other alkaline lythontriptics, that they must be neutralized by the acid, which they will find in the primae viae, or be much weakened by a conjunction with the oily particles, which they must meet there, or in the fluids. To this it may be answered, that an acid is not always to be found in the primae viae, as it is a morbid, and not a natural product, of these parts; and that oily particles may weaken the caustic lie, but cannot altogether destroy its effects. To decide this point, the following experiment was tried.

EXPER. V. June 6. I mixed some of Thomas Duggen's urine, while under the course of caustic alkali, with the syrup of violets, and the colour of it was changed to a light green. The same happened on a mixture of Robert Yates's urine. This ex-

periment was repeated with the urine of one not taking the caustic lie, but without producing the same colour.

EXPER. VI. Spirit of vitriol, diluted with water, was mixed with Duggen's urine; and, on looking through the glass, an evident intestine motion could be perceived in the mixture, a plain proof of alkalescency in the urine. No air bubbles, indeed, arose; but the caustic alkali neither does, nor can afford any.

These two experiments show, that the urine is impregnated with the qualities of the caustic alkali.

My next trials were, to discover whether such urine possesses any lythontriptic powers.

EXPER. VII. August 6. A calculus, of a soft texture, was broken into pieces of a similar shape. Four of these pieces were reduced to the weight of gr. xxvi. each, and one of them was infused in unc. vi. of each of the four following liquors; common water; Duggen's medicine, which was in the proportion of 100 drops of the lie to a pound of veal broth; Duggen's urine; and Yates's urine. August 10. The
different

different pieces of calculi were taken out of the liquors, and dried. The next day, the calculi in the water, and in the broth, were found of the same weight as when they had been put in. But that in Duggen's urine had lost gr. i.; that in Yates's had lost gr. ii.

EXPER. VIII. August 16. I repeated the same trial, and allowed the calculi to remain for 7 days in the different liquors. After the pieces were dried, I found, that those in the water and broth had lost each 1 1-half gr.; that, in Duggen's urine had lost gr. iii.; that, in Yates's urine, had lost gr. iv. From these two experiments it appears, that caustic lie, mixed with broth, in the proportion mentioned above, has no more effect on the stone than water has; but, when it is secreted along with the urine, it regains its solvent power. This is owing to the gelatinous and oily nature of the broth, destroying the action of the lie, and, from that property, becoming fit to protect the primae viae. But the broth is, afterwards, converted into nourishment, and the caustic lie is separated along with the urine, in which state it regains some share of its activity.

EXPER.

EXPER. IX. I got a stone, which had been lately extracted, and infused it in water for several days, to remove all loose matter. After it was dried, it weighed drach. x. gr. vi. This stone was put into unc. vi. of Yates's urine, changed daily, for 20 days. It was then taken out; and, when dried, was found to have lost gr. XLii.

It appears, therefore, from these three last experiments, that the urine of patients taking the caustic lie enjoys some power of dissolving stones, and that we cannot altogether deny the lythontriptic power of this medicine, to which opinion our preceding trials would otherwise have naturally led us. Do calculi consist of such different, and often opposite component principles, that a solvent which affects one will not act on another? This opinion is not yet sufficiently ascertained by experiment; it appears, before that is done, a little improbable; and seems to be refuted by Exp. XIII. Is the softness and porosity of the calculi sufficient to account for the different effects of the lie? I should think it sufficient, as the menstruum will gain easier access; as this has been observed in all experiments on lythontriptics; and as the calculi,

culi, in two of the above experiments, were but pieces broken off from a larger stone.

M E P H I T I C A I R.

Hales found, that the steams of fermenting bodies dissolved calculi. Hence Mephitic Air, or water impregnated with it, have lately laid claim to a place among lithontriptics. Dr Percival, to whose experimental genius medicine is much indebted, has found it to be a very general solvent of calculi out of the body. Dr Saunders has drawn the same conclusion from his experiments. Dr Percival likewise found, that the urine of a young man, while drinking mephitic water, was impregnated with it, and that his urine possessed a lithontriptic power. Its known quality of dissolving magnesia, precipitated lime, and iron, entitles it to our attention in this way. It has the additional advantage of being agreeable to the taste, salutary to the body, and may be taken in any quantity.

On the other hand, it may be replied, that the inhabitants about Pyrmont, Spaw, Seltzer, and over all the higher Germany, where

where there are few villages without a *sour water*, as they call it, are as subject to the stone as those of other countries; that these waters never dissolved a confirmed stone, though they are allowed to have sometimes relieved the symptoms, and they are certainly more fully saturated with it than the artificial water is; and that aq. calc. and caustic lie, act by loosening and attracting the fixed air of the calculus; but that the mephitic air, so far from favouring the escape of what is there, must accumulate more, and add to its size and weight. Experiments alone on calculous patients can decide this question; and I know of none yet published, from which a decisive conclusion can be drawn.

EXPER. X. John Robertson, Exp. IV. after the retreat of the feverish symptoms, appeared to be a favourable patient for the exhibition of this medicine, as it would, at least, fit him, by its tonic powers, for lithotomy, if it did no service as a lithontriptic. He was accordingly ordered to drink 2 pints of mephitic water a day, and to have 4 ounces of it injected into his bladder every morning,

morning, and as much every evening. He generally kept the injection for four hours, felt it hotter than the natural evacuation when it was passed; and it appeared of a deeper colour, and had less of a white mucous sediment than his urine. He continued in this course for 26 days, without any alleviation of his symptoms, or any appearance of the stone being dissolved. He was afterwards cut, and a large stone taken from him. It was honey-combed, and friable; but that is the nature of many calculi, where no medicines have been given. In this case, mephitic water seemed to be attended with no success. It would be unfair, from a single experiment, to draw any general conclusion. We must, therefore, await the issue of further trials.

To discover whether the urine was impregnated with any solvent power.

EXPER. XI. I filled two glasses with some of Robertson's urine, six hours after the mephitic injection was passed, and changed the urine every day. Into one glass, was put an entire calculus, weighing unc. i. gr. ii.; into the other, a fragment of a soft calculus, weighing gr. xxii. In three days, the large calculus lost gr. v. and

and the small gained half a grain. From this experiment no certain conclusion can be drawn.

To discover if his urine was impregnated with mephitic air.

EXPER. XII. His urine, seven hours after he had passed the mephitic injection, was filtrated, and aq. calc. was dropped gradually into it, through a filtrating paper. A cloud, which was thick, and floated on the top, was by degrees formed. On agitation, it was diffused; and the whole liquor was full of flocculi, became turbid, and continued so. The same trial being made with common urine, it became slightly turbid, and soon cleared itself. The urine, therefore, appears, from this experiment, to be, in some degree, impregnated with mephitic air.

From the preceding trials, I was naturally led to doubt of the original lithontriptic powers of this fluid; so got the following experiment to be performed by Mr Kerr, Apothecary to the Royal Infirmary, who was then in the daily practice of making the mephitic water.

EXPER. XIII. He infused the two calculi, mentioned before, in two glasses
of

of mephitic water, which was renewed every day. After being kept three days in it, the calculi were dried, for fifteen hours, before the fire. The larger, which was entire, gained gr. xiii. 1-half; the smaller, which was a fragment, lost gr. ii. This difference in the operation of mephitic water on the two calculi, cannot be attributed to a difference in their component parts, as the same large calculus, infused in Robertson's urine, had formerly lost gr. v.; and the same small one had formerly gained half a grain. Such uncertainty in the result of experiments, accurately made, must throw much doubt on the lithontriptic powers of mephitic air.

Dr Lamphier's experiments, related in his thesis, printed in the year 1778, afford the same conclusion as the preceding; for, on exposing a calculus to mephitic air, he found that it gained in weight; and, in two experiments where calculi were infused in mephitic water, the calculus became heavier in one, and lighter in the other. In Dr Plunket's experiments, published last autumn in his inaugural dissertation, neither mephitic air, which had no communication with the external air, nor his own

M m m urine,

urine, while drinking 4-1half pounds of mephitic water a day, had the least power of dissolving a calculus, though the urine, from discovering some weak antiseptic powers, appeared to be slightly impregnated with mephitic air.

F I N I S.

E R R A T A.

Page 1. line	2. <i>for</i> Bark	<i>read</i> Bark in In-
Page 3.	12. quarter	termittents, quarter of an hour.
4.	21. drach, ii.	drach. ii. for four times.
9.	10. dubiety	doubt.
13.	3. what is	what may ap- pear.
16.	3. cough, a pain	cough and a pain.
17.	13. delirious	delirium.
19.	13. was	were.
25.	12. convalescent, after.	convalescent after.
27.	1. Exper. III.	Exper. IV.
32.	3. the year	the winter.
53.	8. in he	in the.
59.	2. dubiety	doubt.
80.	4. other	In other.
133.	19. the pulse	and the pulse.
155.	23. Exper. XCXI.	Exper. CXXI.
176.	21. years. Has	years, has.
177.	1. affected	has been af- fected.
313.	3. betalae	betulae.
337.	19. was	were.



